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Why Atheism?

by Mark Thomas

Just about everyone is an atheist when it comes to other gods — the gods that other people believe in or that nobody believes in anymore. I'm an atheist about all gods because there's no reliable evidence for any god, or even for Jesus. There is also extensive evidence that Jesus and all gods are fictional characters — myths created mainly by people who had little understanding of how our universe operates. We all like myths and other stories, but we don't have to believe them.

History and Development

of Science and Scientific Naturalism

Let's start with a quick experiment. You can grab three coins and actually do the experiment, or just do a thought experiment.

Drop one coin and watch it fall. Do this again. Hold out the third coin.

If you were to the release third coin, what do you think would happen? If you could get ten good Christians to pray that this next coin wouldn't fall, would it still fall? How about one thousand faithful Muslims? How about one million people of any faith? I think that it would still fall. Drop the third coin. [Note: Some Christians claim that their god would not do such party tricks, but their Bible has many examples.]

Our understanding of the world around us, and our abilities to predict what will happen are based on naturalism — the basis of science. Naturalism is also the basis for how all people live their lives most of the time.

To be explicit, modern science relies on methodological naturalism. This means that science doesn't incorporate any supernatural or religious assumptions and doesn't seek any religious or supernatural explanations. Science is the use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process. Science also depends on mathematics, which likewise has no religious or supernatural component.

In "Cosmos" Neil deGrasse Tyson explained the basic rules of science. "This adventure is made possible by generations of searchers strictly adherent to a simple set of rules. Test ideas by experiments and observations. Build on those ideas that pass the test. Reject the ones that fail. Follow the evidence wherever it leads, and question everything. Accept these terms, and the cosmos is yours."

Dr. Steven Novella wrote this about science: "What do you think science is? There's nothing magical about science. It is simply a systematic way for carefully and thoroughly observing nature and using consistent logic to evaluate results. Which part of that exactly do you disagree with? Do you disagree with being thorough? Using careful observation? Being systematic? Or using consistent logic?"

OK, let's do another experiment. If you were to take two coins and glue them together, then drop them at the same time as you drop a single coin, would they fall twice as fast as the single coin? Aristotle (384 BCE* – 322 BCE) thought so, and for over 1900 years his ideas were what was taught about this and many other subjects. Some of the other ancient Greeks had many ideas that are now a basis for modern science, engineering, math, philosophy, and democracy. Unfortunately for humankind, these ideas were largely forgotten for almost two thousand years while religion took control and Aristotle was revered as the source of supposedly scientific knowledge.

Galileo and Empirical Science

Around 1600, Galileo had a new idea for his culture. He decided to do something that now seems like common sense — to actually test the idea of what we now call gravity. He reasoned that two weights held together would fall at the same rate as one weight. Then he did experiments to test the idea — and, not surprisingly to us, it was true. This was the start of modern empirical science, and our collective understanding of the universe hasn't been the same since.

"Empirical" is a word that I'll be using a lot. It refers to ideas that are capable of being verified or disproved by observation or experiment. Empirical evidence is not simply one type of evidence, but rather it is the only evidence that we can rely on, because it is reproducible. Empirical evidence is the basis for physical science.

Galileo also took the new invention of the telescope, refined it, and used it to look at the night sky. He was astounded. On the moon he could see mountains and valleys. It wasn't just some strange heavenly object; it was probably made out of the same stuff as Earth. In 1610 Galileo looked at Jupiter and discovered that he could see four moons. If moons orbited Jupiter then not everything orbited Earth, as the Catholic Church taught. The motions of the planets in our skies made sense if the theories of Copernicus were true, and Earth and the other planets orbited the sun. This was what Galileo taught, and in 1616 he had to appear before the Catholic Church's Inquisition. They banned him from teaching this idea, which was "opposed to the true faith and contrary to Holy Scripture." However, Galileo later got permission from the pope (a friend of his) to write a book, as long as the Church's ideas and Galileo's were given equal weight. Galileo's book did not treat the two ideas equally, of course, so he was called to Rome in 1632 by the Inquisition, and told to recant his heretical ideas.

This was no "simple request" by the Church. The Inquisition had already executed Galileo's friend Giordano Bruno. Have you heard of him? In 1600, the Christian authorities in Rome took him out of the dungeon he had been in for eight years, drove a nail thru ** his tongue, tied him to a metal post, put wood and some of his books under his feet, and burned him to death. Bruno's crime was writing ideas that the Catholic leaders didn't like — Earth revolves around the sun, the sun is a star, there might be other worlds with other intelligent beings on them, Jesus didn't possess god-like power, and souls can't go to Heaven. For these heretical ideas, the Catholic Church punished this brilliant man with a slow, agonizing death.

Bruno was not the only man executed by the Christians for heretical ideas. At least 77 others were either burned alive or hanged by the Roman Inquisition between 1553 and 1600. Over the centuries, millions were killed in religious wars or for heresy (which often meant simply being the "wrong" type of Christian). Sometimes it was more explicit heresy which threatened the church's lock on truth. The Italian freethinker Lucilio Vanini suggested that humans evolved from apes. In 1618 he was tried in France and found guilty of atheism and witchcraft. He had his tongue cut out, he was hanged, and his body was burned — as was customary with all heretics. Six years later the French Parlement even decreed that criticism of Aristotle was punishable by death, and many more heretics were burned. In Spain the Inquisition killed tens of thousands over a period of four centuries.

Galileo no doubt knew what he was up against. For the crime of heresy the Inquisition could put him in a dungeon, torture or even execute him. So, after a long trial, this proud 70 year-old man obediently got on his knees and dutifully recanted. But even after recanting, he was still sentenced to house arrest for the rest of his life. The Catholic Church officially condemned heliocentrism 31 years later, when Pope Alexander VII banned all books that affirmed Earth's motion. However, even as powerful as the Church was, they could not hold back the tidal wave of scientific discovery. The Church eventually lost its battle over our view of the universe, but it only took them over three hundred years to admit it. In 1992, after 12 years of deliberations, they grudgingly noted that Galileo had been right in supporting the Copernican theories. Even then, they ascribed his genius to God, "who, stirring in the depths of his spirit, stimulated him, anticipating and assisting his intuitions." But no such reprieve has been given for Bruno. His writings are still on the Vatican's list of forbidden texts, and Pope John Paul II refused to even apologize for the Catholic Church's torture killing of Bruno.

Galileo and others started something big — **empirical science**. Thru ** science and the scientific method, we have come to a good understanding of the workings of the world and universe around us. The weather, lightning, thunder, the planets and stars, disease, and life itself all function based on fairly well understood principles. A god doesn't control them; the physical properties of matter and energy control the universe. This principle is at the center of naturalism — the idea that only matter and energy exist, and they have properties that are repeatable, understandable, and quantifiable within the limits of quantum mechanics. Naturalism is founded on the ancient Greek philosophy of materialism. We take naturalism so for granted that we typically don't realize that it is based on several articles of faith. This faith, however, is quite different from religious faith (which is "unevidenced belief" or "pretending to know things you don't know"). This faith can be called "justified confidence" and is based on overwhelming past experience and results. It is the faith that:

- There is an external world that exists independently of our minds.
- There are quantifiable natural laws that describe how things happen in this world, and we can attempt to understand them.

- These natural laws won't change when we're not looking; the universe isn't totally chaotic.

So far this faith in naturalism has been well-founded, as shown by the amazing accomplishments of modern science, engineering and medicine.

God of the Gaps, or Argument From Ignorance

Until just a couple of hundred years ago, most people thought that a god or gods controlled everything. Why did the wind blow? Why was there lightning and thunder? Why did the sun, moon, and stars apparently go around Earth? Why did someone get sick and die? Why did anything happen? *Well, obviously, God did it.* If a person doesn't know how something works or why something happened, they can say, *"God did it."* This is known as the **"god of the gaps,"** or the **"argument from ignorance,"** and it is at the heart of the conflict between science and religion. Science looks for natural causes, while religion looks for supernatural causes. Science is steadily winning, because as we understand more and more about the universe, the gap where a god might function grows smaller and smaller. Every time we learn more, gods have less room to operate. When we learned what caused the sun to apparently move across the sky, there was no need for the Greek god Helios and his chariot or the Egyptian god Ra and his barge. When we understood what caused lightning, there was no need for the Greek god Zeus, the Roman god Jupiter, or the Norse god Thor.

In fact, the understanding of lightning was one of the first areas of battle between science and Christianity. When Ben Franklin discovered that lightning was just a big electric spark, he invented the lightning rod. It was enormously successful at preventing buildings from being struck by lightning. However, this caused a bit of a conundrum for the church leaders; should they trust in their god to prevent lightning strikes on their churches, or should they use these new lightning rods? Up until then, lightning hit churches much more frequently than other, more "deserving" buildings — such as taverns or houses of ill repute. "Why was that?" they might have wondered. Could it be that churches had spires and were taller, or was it *SATAN and his WITCHES?* …… Actually, that is what they often believed, and many a supposed witch was executed for having caused the destruction of a church. When they started putting lightning rods on churches, witch killings stopped soon thereafter. However, the obvious fact is that they were putting their trust in science and lightning rods, not religion and prayer.

Why God(s)? Why Not?

The idea of an all-controlling, caring supernatural god is a very attractive one. It can make our mortal lives seem less frightening, more comforting. Somebody's in control and won't let bad things happen to us. Many gods also promise that we can go to Heaven after we die, to live forever in some sort of bliss.

The idea of a god is also an easy answer to questions about the world around us. It satisfies a need that many people have where they would rather be certain than right. Where did the universe come from? A god created it. Where did life come from? A god created it, too. Where did humans come from? A god created us, and in his own image, to boot.

For almost all believers, it's not just "a god" that they believe in. They believe in a particular god or set of gods.

Religious philosophers have tried for thousands of years to prove that there is a god or many gods. They have come up with many arguments. We will look at these arguments. Because I live in a largely Judeo-Christian society, when I refer to God with a capital 'G' I will be referring to the Judeo-Christian god Yahweh (a.k.a. Jehovah) and probably the Muslim god Allah. This god is male and is typically defined as having free will, and being omniscient (all-knowing), omnipotent (all-powerful), omnibenevolent (all-good), perfect, eternal, and unchanging. This god also created the universe and is separate from the physical world while still intervening in the physical world. After all, what good is a god that doesn't *do* anything? Most of the arguments I use here will also apply to most of the other thousands of gods created by humankind, and most of the thousands of religions. I certainly don't know all of them, so I will deal with most of the major religions and their god(s). I will also closely link god(s) and religion. I do this advisedly because, for most people, one could not exist without the other. In addition, if there were a god I would think that this god would be able to appropriately guide the religions created for it.

There is at least one religion, essential Buddhism as thought to have been taught by Buddha, which does not have a god or any supernatural component. To keep things a bit simpler here, the arguments I make regarding religion will probably not apply to this Buddhism or any other religion without a supernatural component. However, almost all religions have grown from belief in god(s) and people's narcissistic wish to believe that the universe was created just for their benefit.

We need to define “atheist” and “atheism.” A theist is a person who believes in a god or gods. The Greek prefix “a-” means without; thus an atheist is without belief and doesn't believe in any gods — and atheism is just the lack of belief in any gods. Atheists can simply say that the existence of any god hasn't been reliably proven. For many, atheism is also the conclusion that no gods exist, based on the complete lack of reliable evidence for any god. I take the strong atheist position — depending on how we define “God” we can prove that it does not exist, and I will use the typical definition just given for the Christian god Yahweh.

Why am I doing this? Is it just because I want to poke holes in people’s beliefs so that we can take away what makes them happy? No, I’m doing this because I want to know what is true, be intellectually honest, and be open to reality. And, I hope that you have similar reasons.

This article is an argument in support of reason, rationality, intellectual honesty, and truth. We must know the truth to act wisely, and truth comes from physical reality. I put forth many of the reasons why atheism is true — based on physical reality — so they can be examined and evaluated. I also show why atheism and the philosophical extension Humanism are important to the future of humankind.

The arguments for the existence of god(s) fall into several areas. I have arranged them into these categories:

- Mysticism and Revelation
- “Scientific” Claims
- Love and Morality
- Appeals to Authority
- Prophecies and Miracles
- Appeals to Faith, Logic, and Emotion

What Tools Can We Use?

How can we examine these claims? What tools can we use to determine truth of external reality? We have (1) empirical, verifiable **evidence**; and we have (2) **logic**. Evidence and logic are the best tools we have to determine how the universe really works. These tools have been extraordinarily successful in science, engineering and medicine, and in our daily lives. This is the standard that most of us expect in dealing with the real world; we expect doctors to use the latest medicine, and engineers to use empirical data when building bridges. Why should we use anything else for examining external reality?

When people believe things without evidence, they are left with no way to accurately judge whether or not what they believe reflects how things really are. Their beliefs must then be based on feelings and emotion or the unquestioned authority of something or somebody else, not evidence. I think that this is the reason for much of the emotional response to atheism. For many, the idea of atheism challenges their deeply-held beliefs and emotions. This can be painful, and can elicit a strong reaction.

Each of us can choose between a magical view of the universe (one or more invisible, immaterial gods did it), or the “what you see is what you get” scientific version. I think that science, using empirical evidence and rational logic, has done a far better job in explaining how the universe works.

Thinking is hard, and scientific thinking is hardest; it often leads to unpleasant conclusions with little emotional payoff. Dramatic religious story-telling that supports wishful thinking is usually easier, more interesting, and much more emotionally fulfilling.

At the center of science is intellectual honesty. In order for ideas to be accepted in science, they must be supported by sufficient evidence and arguments. Anybody can change what is accepted in science, if they can put forth evidence and arguments sufficient to show that their new idea is better. In fact, the larger the change created by an individual, the more that individual is honored. This is why Galileo, Newton, Darwin and Einstein are honored — because their ideas radically changed our views of the universe. With this process of change, science can grow and improve our understanding of the universe. Conversely, most religions are stuck with unchanging “holy” words from a book or founder.

Mysticism, Revelation and Experience

Some people claim that there are other ways of knowing, such as mysticism, revelation or direct experience. People claim that they can experience a god, with Christians sometimes thinking that what they call the Holy Spirit has come into them. Many claim that near death experiences have shown them that a god exists. How can we verify these claims? We know that mystical experiences can be caused by hallucinogenic drugs, magnetic fields, brain injuries, and well-studied mental illnesses such as schizophrenia and seizures. The “Holy Spirit” experience seems to be very similar to the well-documented experience of catharsis. Near death experiences are

likely the result of brain cells misfiring when they are oxygen-deprived, can be simulated by drugs, and are obviously subjective. Fighter pilots, for instance, experience "tunnel vision" during high-G maneuvers, when their brains are deprived of oxygen. People claiming knowledge thru mysticism or revelation often don't even agree with each other. The only way that I know to verify any mystic's abilities is for the supposed mystic to be able to accurately, repeatedly, and verifiably know things that are supposedly impossible to know — such as events of the future. I know of no one who can, or could. Of course, we have to be very careful in any testing of such claims, because a good magician can easily fool us. Even if there were somebody who could predict the future, that does not mean that there's a god. It would only mean that this person has peculiar skills. I submit that mysticism and revelation result from internal, altered states of consciousness — with no basis in external reality. Mysticism, revelation, and any other religious experience can only count at most for those who experience them; for all other people, they are merely hearsay. In addition, religious experience seems to be highly subjective and varies dramatically between cultures. Thus, we can't depend on mysticism or religious revelation to give us reliable answers to any issues.

"Scientific" Arguments for God(s)

The biggest weakness in using a god to explain anything scientifically is that the explanation is not falsifiable, and thus not even testable. There is no way to create an experiment to show that it's wrong. For every possible set of a test and a result, we could simply say, "A god did it." How did Earth and the universe begin, and why do they appear to be so old? "A god did it." How did life start, and why does nature seem so balanced? "A god did it." Once again, why does anything happen? If we say that a god did it, there is no reason or opportunity to learn how the world really works. If we had stayed with a god as the cause of all events, our modern culture would have been impossible. We would have no real science, engineering, or medicine. We would still be living in the Dark Ages.

The "god did it" or "god of the gaps" argument has probably been around since humans first started creating gods. It's the basic premise behind all the "scientific" arguments for the existence of a god. Here's what the logic looks like when applied to two common weather phenomena: Lightning and thunder are terrifying! They must be caused by something else (that we don't really understand either). This something else must be a god because we can't come up with a better explanation.

The obvious main fault of "god of the gaps" is its supposition that current lack of knowledge on a subject means that it can't be known — that "unknown" means "unknowable." If this applies to an individual, it's the argument from personal incredulity — because a person doesn't understand something then he thinks that the subject must be unknown, unknowable, or false.

When faced with an unknown, let's first note that it's perfectly OK to say, "I don't know," or, "We don't know," — just as it would have been when people in the past asked, "What causes lightning or tornadoes?" or, "Why do things fall to the ground?" or countless other questions for which we now have straightforward scientific explanations. Obviously, just because we don't know how something happened does not mean that a god did it. Relegating an explanation of something to a god is easy; a person doesn't have to think much. Finding an explanation with science often involves hard work and analysis. We can't simply explain something mysterious by appealing to something more mysterious for which there is less evidence.

"God did it" is not an explanation. It tells no more than saying, "Santa did it."

For the fringe areas of knowledge that we don't understand, we are using the tools of science to learn the secrets of nature. As we have all seen, science has made excellent advances in our understanding of the universe, and will, no doubt, continue to do so. There may also be things that are too difficult or impossible for us to understand, but that doesn't mean that some god is behind them.

There are three common "god of the gaps" types of arguments for the existence of a god. We have: (1) First Cause, (2) Argument From Design (including Intelligent Design), and (3) origin of consciousness.

First Cause, or Cosmological Argument

The First Cause, or Cosmological Argument, says that everything has a cause, and, since we supposedly can't have an infinite series of causes stretching into the past, a god must be the first cause — an uncaused cause. This argument was described by Aristotle, and has at least four problems.

The main problem of the First Cause Argument is the idea that every event has a cause. As we discovered in the 20th century, the universe is actually ruled at the bottom level by quantum mechanics, in which it's possible for particles and events to have no cause. An obvious example of quantum mechanics in action is the radioactive decay of a uranium atom. There is no previous

cause for each such event, and we can only predict it with probability. The averaging of quantum effects gives us the Newtonian experience that we have. However, Newtonian physics does not control the universe; quantum mechanics and Einsteinian relativity do. We now know that the universe has an intrinsic, bottom level of uncertainty that cannot be bypassed. Quantum mechanics also shows us that particles can appear out of nothing and then disappear back into nothing. Even in supposedly empty space, virtual particles are continuously appearing and disappearing. This is a real and measurable process, via what are known as the Casimir effect and the Lamb shift.

Quantum mechanics shows us that subatomic particles such as electrons, protons and neutrons can disappear and reappear in a different place, without existing in the intervening space. Such particles can even be in more than one place at a time, if that time is brief enough. Perhaps even stranger, an electron can travel between two points by taking all possible paths simultaneously.

I'd like to emphasize that quantum mechanics doesn't make sense in our experience of the world. As Nobel laureate physicist Richard Feynman wrote, "The theory of quantum electrodynamics describes nature as absurd from the point of view of common sense. And it agrees fully with experiment. So I hope you can accept nature as she is — absurd."

The Big Bang

The beginning of the observable universe — of all the matter and energy in it and even of time itself — is called the Big Bang. The science of quantum mechanics has only existed since the early 1900's, and already we've been able to use it to get extremely close to understanding the beginning of the observable universe — with no god needed. How close can we get? Approximately a trillion-trillion-trillionth of a second after the Big Bang. (Our current knowledge of physics doesn't work before then, and the Large Hadron Collider can't create experiments simulating conditions before then.) The Big Bang Theory is supported by extensive data from astronomy. Six prominent facts are:

- The red shift of almost all galaxies, getting greater as their distance increases.
  — This shows that the galaxies are flying away from each other, at greater speeds at greater distances.
- The cosmic microwave background radiation.
  — This is a remnant of the radiation from the Big Bang, and has cooled over time to the exact temperature predicted.
- The variations in the cosmic microwave background radiation.
  — These variations fit theoretical predictions, and were caused by quantum differences near the start of Big Bang.
- The proportions of the lightest elements and isotopes.
  — This helps show that the calculations for nuclear interactions immediately following the Big Bang are correct.
- The changes in galaxies as we look further away (and thus back in time), with distant galaxies more primitive and having fewer heavy elements.
  — This shows some of the changes in the universe since the Big Bang, and confirms the deep time of the universe.
- The change in the apparent speed of type 1a supernova as we look back in time, with distant supernova exploding more slowly.
  — This shows that the light has been stretched out by the expansion of space over billions of years.

There are many well-respected physicists, such as Stephen Hawking, Alan Guth, Lawrence Krauss, Sean M. Carroll, Victor Stenger, Leonard Mlodinow, Lisa Randall, Michio Kaku, Robert A.J. Matthews, and Nobel laureate Frank Wilczek, who have created scientific models where the Big Bang and thus the entire universe could arise and expand from nothing but a random quantum fluctuation of vacuum energy — via natural processes and with a total energy of zero. Alan Guth calls this Inflation Theory.

Even tho Inflation Theory doesn't make sense in the Newtonian physics of our experience of the world, it does make sense in quantum mechanics and Einstein's general relativity. In relativity, gravity can be negative energy and matter is positive energy. Because the two seem to be equal in absolute total value, our observable universe appears balanced to the sum of zero. Our universe could thus have come into existence without violating conservation of mass and energy — with the matter of the universe condensing out of the positive energy as the universe cooled, and gravity created from the negative energy. As Lawrence Krauss noted, "The total energy of the universe is precisely zero, because gravity can have negative energy. The negative energy of gravity balances out the positive energy of matter. Only such a universe can begin from nothing. The laws of physics allow a universe to begin from nothing. You don't need a deity. Quantum fluctuations can produce a universe."

For a 16-minute video by PBS Digital Studios on this, check out The Nature of Nothing.

Cosmologists have shown that the positive energy of the universe is divided into about 68% dark energy, 27% dark matter (both of which we now have little understanding), and about 5% regular

matter such as atoms — everything we see. As Lawrence Krauss said, "Why such a universe in which we're so irrelevant would be made for us is beyond me."

There is excellent experimental and theoretical evidence to support Inflation Theory. We may eventually determine that Inflation Theory is wrong or incomplete, and we may never be able to completely understand the actual beginning. It could be that we're not smart enough or that the physical science necessary is not possible for us to do. But, that doesn't mean that a god caused the Big Bang — any more than our past lack of understanding of weather meant that a god caused lightning.

The Meta-Universe (a.k.a. Multiverse)

The next problem of the First Cause Argument is the assumption that an infinite chain of events is impossible. This argument is made moot by the Big Bang, which negates the need for considering an infinite chain of events in our universe. Because time started with the Big Bang, any question of what happened before is nonsensical — much like asking what is north of the North Pole. Also, many cosmologists have proposed that our universe could be part of a much larger, super and perhaps eternal meta-universe. In this meta-universe (a.k.a. multiverse) "baby" universes are created by pinching off from "parent" universes — leaving no way to inquire about the characteristics of a parent universe. We certainly don't know for sure, and may never know. However, this meta-universe would allow infinite chains of events.

Another problem comes from the common definition of God as eternal, perfect and unchanging. If these qualities were true, then why would God need a universe and how could God change from not needing a universe to needing and creating one? This god would have existed for an eternity and then decided to create the universe. Thus, the Creator God that is eternal, perfect and unchanging is impossible.

The last problem with the First Cause Argument lies in its assumption that this eternal god exists, something that it is trying to prove. This is known as begging the question. Even a child can ask, "If God created the universe, then who created God?" If the answer is that God is uncaused, then the same answer could certainly be applied to the existence of the universe — that *it* is uncaused. Besides, which god are we talking about? People using the First Cause Argument always make the assumption that their god did the creating. Muslims think that Allah created the universe. Hindus think that Brahma did it. Christians and Jews think that Yahweh did it. Most religions have a story of how their god created the universe. The idea of a god as creator of the universe makes for a good tale, but it obviously tells us little about the characteristics of that god. What they are doing is explaining one mystery with a bigger mystery, and that is fallacious logic.

Argument From Design (Teleological Argument)

The Argument From Design states that the universe is so complex that it requires a designer, like a watch requires a watchmaker. It's just another argument from ignorance.

Many people think that the world looks like it was designed (and by their god, to boot). Of course, the sun also looks like it goes around the Earth. It is only thru science that we know that both of these perceptions are wrong.

To explain the complexity of the universe and life, all we need are the properties of self-organization and emergence that arise out of complex adaptive systems. Stars, galaxies and planets have come into being as the universe has slowly increased in complexity over time — from the simplicity of the Big Bang. Biology and paleontology have shown that life has also slowly grown in complexity over time — dependent only on the the rules of physics and chemistry. No god was necessary.

I will discuss more about complexity in the following sections on Intelligent Design and the Theory of Evolution.

Intelligent Design, Creationism, and Irreducible Complexity

One form of the Argument From Design is called Intelligent Design (ID), which has evolved from biblical creationism. It states that life on Earth is so complex that it must have had an intelligent designer, and it is gaining strength by masquerading as a science. It's a belief structure and not science because there is no body of research to support its claims, and it makes no testable predictions. To get around legal restrictions on teaching religious dogma, proponents of ID often say that they don't know what this designer was; it could have been an alien or a god. This is disingenuous. If it was an alien, then the obvious question is: where and how did the alien originate? If they really mean God, which is what some of them have admitted, then ID is basically creationism with a few new ideas. So, I will treat ID and creationism as basically the same.

Proponents of the Argument From Design and Intelligent Design make many claims:

- The complexity of life and the universe require a cause that is not part of this natural universe.
- Irreducible complexity shows that the odds against natural causes for certain processes are too great, so a designer is necessary.
- The physical laws require a lawgiver.
- The laws of physics were fine-tuned for life.
- Science can't explain all the features of life.
- Our system of life on Earth was designed.
- The 2nd law of thermodynamics proves that evolution is impossible.
- What they really claim is "God did it!"

Let's start with the apparent design of the universe, and use a story of Sir Isaac Newton as an example. A deeply religious man, Newton was struck by the order that he observed in the orbits of the planets, with all of them in the same plane. He could think of no reason for this, so he attributed it to God. Of course now, thru science, we understand the gravitational dynamics in the formation of solar systems fairly well, and no longer need to invoke a god. Science is similarly showing how the rest of the universe works and eliminating the need for theistic explanations.

Now let's look at the 2nd law of thermodynamics. This states that any closed system will tend toward disorder. However, it does *not* apply to the Earth, because we live in an open system with energy constantly streaming in from our sun. This is the energy that powers almost all life on our planet. Thus the 2nd law of thermodynamics does not apply to evolution or any living being.

Next, let's consider the laws of physics. They are really just our current best quantified explanations or descriptions of how matter and energy behave — not anything like man-made laws. These descriptions have changed in the past (e.g. $E=MC^2$) and will likely change in the future. We currently don't know why the parameters of matter and energy have certain values, but that doesn't mean that some god set them that way. The simple solution to the question of the source of the laws of physics is to accept them as brute fact, with no source. It could also be that there are almost countless universes, each with different self-consistent laws and constants. String theory, for example, allows for 10^{500} possible universes. If some of them exist and even one of those allowed life, then that would be our universe. This is known as the Anthropic Principle. In other words, if our universe had different laws we would not exist to see it, and thus we naturally live in one that allows us to exist.

Note also that gods are (pretty much by definition) exempt from any laws of physics. So, positing a god as the source of the universe can ignore any laws of physics.

If it were true that a god set up the universe specifically for us, he certainly waited a long time for the result. The universe has been around for about 14 billion years. It took about nine billion years before Earth was formed from the remnants of supernova stars. Single celled bacteria were forming ecosystems about a billion years after that, as shown by the evidence for Earth's history in its rocks and fossils. For about two and a half billion years life consisted of only single celled organisms. Life evolved and became more complex with multi-celled organisms. It then took another billion years for fish, reptiles and mammals to appear. Then humans, God's supposed reason for the whole creation, finally came along within the last 100,000 to 200,000 years or so — on one planet orbiting one of the septillions of stars. This seems like a lengthy, complex, massive, and apparently natural process for an omnipotent being that could have simply snapped everything (or just one magic planet) into existence. Using a god as the source of the laws of physics just doesn't make sense. Once again, religionists are trying to explain one mystery with a bigger mystery.

Ultimately, an "intelligent designer" of the universe or order or life explains nothing. It simply moves the lack of knowledge up one level, because this "intelligent designer" is left without an explanation — unless you posit either that it always existed or there was a "more intelligent designer" of the "intelligent designer" ... ad infinitum and ad nauseum. If it always existed, then what caused it to go an infinite amount of time and abruptly decide to create the universe? Thus, the "intelligent designer" answer is plagued with two insurmountable infinity problems.

It's important to note that the universe was not designed for life; in practically the entire universe conditions are extremely hostile to life. Life is exceedingly sparse in the universe, even if it exists on every planet and moon. All we do know is that life exists on one oasis — Earth. Any sort of life that we can imagine only has a chance on what is likely only a small percentage of planets or moons. Most of the universe is nearly empty, and almost all of the visible (non dark) matter is in stars or nebulae. Saying that the universe is made just for us is like an individual arguing that the whole universe, Earth, life, the human species, all her ancestors, and her genes were created just for her. "After all," she could say, "look at the odds against everything being just as it was. My god must have created everything just so I could exist."

The core argument in Intelligent Design is the fact that evolutionary biologists can't yet fully explain all the features of life; therefore ID claims that life must have been designed by some intelligent being. This is a "god of the gaps" argument, and it is scientifically, logically, and historically flawed.

ID is scientifically flawed because it violates the ground rules of science by allowing supernatural (meaning outside of nature) causation.

ID is logically flawed in two ways. The first logical flaw in ID is that it's based on a lack of knowledge — explaining gaps in knowledge by invoking the magic of an unknown (perhaps supernatural) being. Like all "god of the gaps" arguments, ID is not falsifiable, can't even be tested, and says nothing about the moral qualities of this unknown being, god, or gods. The second logical flaw is in the assumption it makes that, because something is supposedly very highly unlikely, something else must have designed it. What ID proponents blatantly ignore, because they take the existence of their god as a given, is the fact that this unknown designer must be even more complex, and thus less probable, than what ID was invoked to explain. The basic question is thus, "Who designed the designer?" This argument dates back to David Hume in the 1700's. Richard Dawkins calls it the "ultimate Boeing 747 gambit" because it shows the fatal weakness of Fred Hoyle's ID argument that the "probability of life originating on Earth is no greater than the chance that a hurricane, sweeping through a scrapyard, would have the luck to assemble a Boeing 747." A designer god would have to be immeasurably more complex than a 747 — an ultimate Boeing 747.

ID is historically flawed because science has shown excellent progress in explaining the world around us. As professor of physics Bob Park wrote, "All of science is built on territory once occupied by gods. Is there some boundary at which science is supposed to stop?". There is nothing to show that evolutionary biology should be abandoned simply because it has not yet explained the origins of every single process of life. Because biochemical processes don't leave behind fossils, it's not as easy to explain their origins as it is for bone structures that do fossilize. However, evolutionary biologists are making excellent progress in understanding the origins and processes of the biochemistry of life.

Proponents of ID have also created the idea of irreducible complexity, which is central to ID. It states that many processes of life are too complex and irreducible to have evolved; therefore a designer must have created them. This complexity comes from many interrelated parts or processes, which supposedly are useless without all the other parts or processes. This is just another "god of the gaps" and it also falls apart under close examination.

"What good is half an eye?" they ask. The answer is simple. Any amount of vision is better than none, and any change that improves vision probably improves survivability. Starting with basic light-sensing cells, eyes have evolved thru natural selection — one small step at a time. Richard Dawkins has an excellent explanation of this (and much more) in his book *Climbing Mount Improbable*.

An icon of the irreducible complexity concept is the bacterial flagellum, with its many similarities to an electric motor — and about 30 protein components required to produce a working biological function. Unfortunately for the ID movement, research has demolished the flagellum's status as an example of irreducible complexity. Some bacteria use what is known as type III secretory system (TTSS) to allow them to inject proteins directly into the cytoplasm of a host cell. TTSS has a strong likeness in structure to the flagellum, and uses about 15 to 20 of the same proteins. This shows that the flagellum is not irreducibly complex, because a functioning structure (albeit with a different function) can be made with 10 to 15 fewer proteins. A detailed analysis can be found in The Flagellum Unspun: The Collapse of "Irreducible Complexity".

Intelligent Design is simply not science; it's religion dressed up to look like science to the uninformed. It is mystical pseudoscience.

I'd like to address a common statement made by creationists — that scientists have supposedly never actually witnessed evolution, so evolution either: a) isn't real science, or b) hasn't happened. First, this is a gross mischaracterization of science. There are many processes that scientists can understand without directly witnessing them, such as much of geology or fusion at the cores of stars. Second, this statement ignores the fact that evolution usually takes thousands or millions of years. It's like looking at a tree and saying that it's not growing because you can't see any growth in a day. Third, for many, many species we have excellent evidence in the fossil record and genetic data of the changes of the species. Fourth, scientists have actually witnessed the rapid evolution of new species — the apple moth from the hawthorn moth, a new species of polychaetes fish, and many more.

The Theory of Evolution

Life is a process — not a design. It requires an explanation — not an intelligent designer. This explanation is the fact and theory of evolution. "Evolution" simply means change over time. It's a fact that enormous changes to life on Earth have occurred. The 3.5 billion year fossil record is clear and unambiguous on this. The Theory of Evolution explains the natural processes that caused these changes, and it explains the genetic similarities that all life on Earth has.

There are at least eleven areas of study and empirical data supporting the Theory of Evolution. They are:

- Paleontology (fossils)
- Distribution of Animals and Plants
- Comparative Anatomy
- Embryology
- Vestigial Organs
- Genetics
- Natural Selection
- Sexual Selection
- Molecular Biology
- Bad Design
- Lab Experiments

I will only deal here with brief overviews of paleontology, embryology, vestigial organs, genetics, natural selection, bad design, and lab experiments. I will also look at the related science of abiogenesis (the study of the origin of life). For more extensive overviews of evolution, I suggest the article '29+ Evidences for Macroevolution: The Scientific Case for Common Descent' by Douglas L. Theobald, the video 'Why Evolution Is True' by Jerry Coyne, and the article 'Top 10 Evolution Myths' by the Skeptics Society.

Paleontology

The history of life on Earth is in its fossils, and more than 99% of all species that ever existed are now extinct. (Note that this is a lousy record for any sort of intelligent designer.) We have extensive fossils showing how species have come and gone over the last several hundred million years. Here are just a few examples:

- Trilobites appeared over 500 million years ago and existed for 300 million years (with over 15,000 known species).
- About 375 million years ago, land animals were evolving from fish.
- Dinosaurs (with an estimated 200,000 species) lived between 251 and 65.5 million years ago.
- Horses are descended from the cat-sized Eohippus of about 55 million years ago.
- Whales are descended from land animals of about 52 million years ago.
- Humans are descended from a long line of hominids, over at least 4.4 million years.

The dating methods for determining the ages of fossils and rocks are well established. They usually depend on the radioactive decay of different isotopes of elements, and can be used on objects that are hundreds to billions of years old. For an in-depth explanation, see "Accuracy of Fossils and Dating Methods."

The evidence for evolution of life is overwhelming and conclusive. This evidence is not just in the fossils, but also in the body parts and genes of almost every living thing. If you have any doubts, take a little time to learn the concepts of evolution, then spend a few hours in any natural history museum or public library. If your mind is at all open, you will see the evidence. Remember, ignorance of how evolution works is no argument against it. The basic Theory of Evolution is completely solid, and will continue to be updated as we learn more about the complex history of life.

Embryology

Unlike other primates, humans don't have a thick coat of fur. At around six months after conception, humans and all other primates have a downy coat of hair called lanugo. For humans, this coat is usually shed about a month before birth, altho some premature infants are born with it. Even whale fetuses have and shed lanugo, which is a relic of their land ancestry.

The embryos of all cetaceans (dolphins, porpoises and whales) also show the evidence of their four legged land ancestry, with hind limb structures that are obvious at about 24 days of age. In dolphins these typically have almost completely disappeared by 48 days, altho in 2006 a bottlenose dolphin was found in Japan with rear fins. In whales these structures often develop into a useless pelvis and rudimentary rear legs that are contained within the body.

All vertebrates have embryos that have fish-like features with tails and what are called branchial arches. In fish these arches develop into the jaw and gills. In humans and other mammals they go thru complex changes to develop into structures in the adult head and upper body.

Fish embryos become fish. Amphibian embryos start like fish, and add extra development to become amphibians. Reptile embryos start like fish, go thru developments like amphibians, and add extra development to become reptiles. Mammalian embryos go thru all these stages, then lose some reptilian development and add extra development to become mammals. In mammals the initial fish-like circulatory system turns into an amphibian-like system. It then changes to a system similar to embryonic reptiles, and finally turns into a true mammalian circulatory system.

This “recapitulation” of our evolutionary history is also followed in the embryonic development of other organs, such as our kidneys. Three different types of kidneys are formed sequentially, with the first two similar to those of fish and reptiles. Only the last (mammalian) organs are kept.

All these embryological changes only truly make sense when viewed thru the lens of evolution, where each individual (and eventually species) inherits the development processes of its immediate

ancestor. Intelligent Design offers no explanation for these convoluted processes.

Vestigial Organs

You don't even need to go to a natural history museum or library to see evidence for evolution; our own bodies have many signs of our evolutionary heritage. When we get goose bumps, our bodies are trying to keep warm by raising hairs that are no longer dense enough to help. The muscles that allow us to wiggle our ears are of no use for us, but they did help some distant ancestors. Humans also have many other useless, vestigial organs such as nipples and mammary glands on males (like all mammals) and the tailbone, which is just a holdover from when our primate ancestors actually had tails millions of years ago.

Many other species also have obviously useless, vestigial organs:

- Flightless birds such as kiwis and ostriches have vestigial wings.
- Some whales still have vestigial legs and pelvic bones, as noted above.
- Some fish which live in caves are blind but still have vestigial eyes.
- Dandelions reproduce without fertilization and basically clone themselves; altho they have the proper organs necessary for sexual reproduction, they do not use them.

Intelligent Design completely fails to explain these vestigial organs on embryos, adults, and plants — which are obviously suboptimal. The Theory of Evolution explains them perfectly. If some god designed us and all life, he/she/it certainly didn't do a perfect job. Stephen J. Gould stated it well; "Odd arrangements and funny solutions are the proof of evolution — paths that a sensible God would never tread but that a natural process, constrained by history, follows perforce."

Genetics

Every cell in our bodies contains the evidence of our evolutionary origins. The basic process of life on Earth is so common that we share about 50% of our genes with carrots, and about 99% of our genes with chimpanzees (but, that's a difference of 15 million to 30 million genes and gene switches). In fact, humans are genetically closer to chimps than mice are to rats. Here are some useful biological facts:

- We get an exact copy of the mitochondria in each cell from our mother, almost every time.
- Every male gets an exact copy of his Y chromosome from his father, almost every time.
- Both mitochondria and Y chromosomes slowly mutate over time at known rates.

With this knowledge, geneticists can estimate how recently any two of us shared a common female ancestor, or any two males shared a common male ancestor. Using this information and other data, the evidence strongly points to the claim that most or all of us are descended from a group of Africans that started migrating about 100,000 years ago.

We share about 99% of our genes with chimps, but we have 23 pairs of chromosomes while chimps and other great apes have 24. A close examination of the chromosomes shows that one pair of our chromosomes is made of two from the other primates. Our combined chromosome even shows the evidence of where the two chromosomes joined, with the ends of the old chromosomes in the middle of the joined chromosome. For more, see Evidence of Common Descent between Man and Other Primates.

Most animals have the capability to synthesize vitamin C, but in humans and other primates the gene for this is broken and doesn't function. The differences in the DNA sequences for this broken gene (called a pseudogene) correlate to the genetic drift that is predicted by evolutionary theory, with chimpanzees being the most similar to humans — followed by orangutans and macaques.

Natural Selection

Let me address a common example that proponents of Intelligent Design use. *[See general eye diagram.]* "Look at the wonderful design of the human eye," they say. "Surely this design could not have happened by chance. It must be that "God did it." Actually, it did happen by chance — countless little chance events of changes in the gene pool over generations, all controlled by the harsh realities of natural selection and survival of the fittest. While the initial changes in the gene pool (mutations) were chance events, survival of the fittest is obviously not random. This is the heart of the basic Theory of Evolution; individuals can pass their genes and characteristics on to their offspring. If a gene makes an individual more likely to have offspring that survive, its offspring (carrying that gene) will also be more likely to have offspring that survive. In effect, species *are* designed to fit their environment. The designer is the blind process of evolution, however, not some god or gods. Evolution creates an illusion of human or supernatural design. This illusion is so powerful that it took until 1859 for us to discover it, when Charles Darwin put forth one of the greatest ideas in science — evolution by natural selection. This idea was the progenitor and center of the Theory of Evolution.

Darwin was limited by the scientific knowledge of the time, and thus didn't know about genes — the way that characteristics are inherited. This limitation was soon filled in by Gregor Mendel, who showed that the inheritance of traits follows particular mathematical laws.

Bad Design

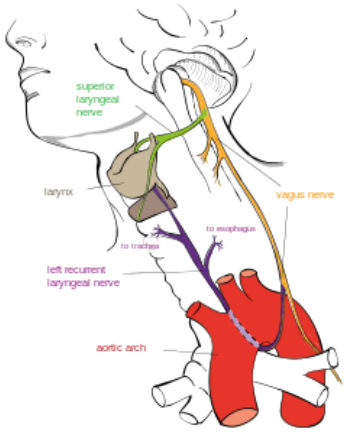
The faults in the design of the human eye, especially, show its evolutionary origins. *[See eye diagram of retina.]* When we study the retina at the back of the eye, we can see that the cell layers are backwards. Light has to travel thru seven layers of cells before reaching the light sensing cells. Then the signals go back thru these layers to the nerves on the inside surface. In addition, the blood vessels are on the inside surface and further block the light. A truly intelligent designer could have done better than the human eye. Actually, evolution did a better job with the eyes of birds (which have no blood vessels in the retina) and the octopus and squid (which have the light sensing cells on the surface).

In fact, vision is so useful for survival that eyes have evolved independently at least twenty separate times, with at least a dozen different designs.

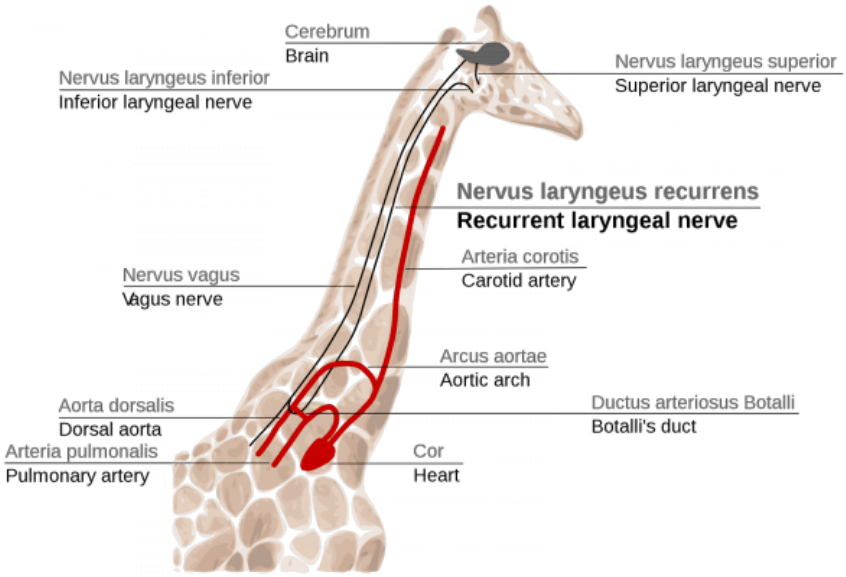
Humans and other animals have many more examples of sub-optimal or bad designs. Here are a few:

- One of the worst designs in mammals is the nerve for the larynx, called the recurrent laryngeal nerve. It's much longer than it needs to be — going from the brain into the chest, around the aorta, and back up to the larynx. In humans it's about three feet too long, but in giraffes it's about fifteen feet longer than needed. In most modern-day fish, there is no such detour; the nerve travels directly from the brain, past the heart, and to the gills. As mammals eventually evolved from fish, evolution simply lengthened the nerve - and it got "stuck" on the wrong side of the aortic arch. As Richard Dawkins put it, “evolution cannot go back to the drawing board. Evolution has no foresight.”

  Here's how the recurrent laryngeal nerve is configured in humans:



  Here's the nerve in giraffes (where it takes a long detour):



- The human pelvis slopes forward, which was useful for our knuckle-walking ancestors. The only reason that we can walk upright is because we have an incredible sharp bend at the base of our spines (which is the source for so much low back pain). Our abdominal organs are even suspended from the spine, which is just a vestigial holdover from when the spine was actually above them.

- The human baby's skull is too big, such that many women die painfully in childbirth if they don't get modern medicine.

Lab Experiments

Many people think that science requires lab experiments, which is a gross misunderstanding of science. The Theory of Evolution doesn't need lab experiments for verification; it has the entire history of life on Earth. It is a bonus that successful lab experiments have been done, using random mutation and survival of the fittest to create new bacteria. Scientists at the Brookhaven National Laboratory developed new strains of bacteria that live in harsh environments while consuming carbon-rich materials such as oil and coal. There are also new strains of bacteria (using new enzymes) that can digest byproducts of nylon manufacture.

A Bottom-Up Process

The Theory of Evolution explains embryological quirks, vestigial organs, and other bad designs. It also explains how order and complexity (like eyes and new enzymes) can grow from simplicity. Over billions of years, evolution has resulted in the vast array of species on our planet, with their many complex organs and traits. We understand how biological patterns emerge. *Climbing Mount Improbable*, by Richard Dawkins, shows how highly intrinsically improbable features of organisms can come about thru very small (and possible) evolutionary steps. Daniel Dennett explains, in *Darwin's Dangerous Idea: Evolution and the Meanings of Life*, how evolution is the central organizing natural process that gives rise to complexity. Evolution doesn't require a top-down designer; it is a bottom-up process that results in complexity and order naturally emerging from simplicity. For a short video about evolution, see "What is the Evidence for Evolution?." For much more, check out the PBS series "Your Inner Fish, with Neil Shubin," or read his book with the same title.

Like any scientific theory, the Theory of Evolution is falsifiable. Here's a list by Jerry Coyne of things that would falsify evolution:

- Fossils in the wrong place (e.g., mammals in the Devonian)
- Adaptations in one species good only for a second species
- A general lack of genetic variation in species
- Adaptations that could not have evolved by a step-by-step process of ever-increasing fitness
- The observation that most adaptations of individuals are inimical for individuals or their genes but good for populations/species
- Evolved “true” altruistic behavior among non-relatives in non-social animals
- Complete discordance between phylogenies (evolutionary history of groups) based on morphology/fossils and on DNA

Dr. Coyne wrote, “We don’t see any of these anomalies, and so the theory of evolution is on solid ground.” As he said in his book *Why Evolution is True*, “Despite a million chances to be wrong, evolution always comes up right. That’s as close to a scientific truth as we can get.”

Evolution is thus both a fact and a scientific theory. It is a fact that species have evolved. The Theory of Evolution explains our best understanding of the processes that cause evolution. It's a lot like gravity. Gravity is obviously a fact. The theory of gravity is our best understanding of how gravity works.

“Only a Theory”

People often say that evolution is “only a theory.” It’s important to remember that the term “theory” in science is not the same as it is in general usage. **A scientific theory is a unifying concept that explains a large body of data. It is a hypothesis that has withstood the test of time and the challenge of opposing views.** The Theory of Evolution is the basic unifying concept of biology. The CEO of The American Association for the Advancement of Science, Alan Leshner, wrote, “Although scientists may debate details of the mechanisms of evolution, there is no argument among scientists as to whether evolution is taking place.” The National Academy of Sciences, the most prestigious scientific organization in the United States, has declared evolution “one of the strongest and most useful scientific theories we have,” and notes that evolution is supported by an overwhelming scientific consensus. The Theory of Evolution has as much validity as the theory of gravity, atomic theory, or the germ theory of disease. It's interesting to note that the idea that the Earth goes around the sun is also a scientific theory — albeit one with extensive evidence. Every

day our eyes are deceived, when we see the sun rising and setting as it apparently goes around the Earth.

There is an underlying problem with the design argument, and most proponents of Intelligent Design probably aren't aware of it. By assuming that living things have some sort of metaphysical purpose, they are intrinsically assuming what they want to prove. Purpose is an abstract human concept that exists only in our minds, much like beauty — with no physical reality. In the universe things have no intrinsic purpose; they just exist. Does an atom have any purpose? Does a pebble? Does a star? Does an amoeba, plant or any living thing have a real external purpose? We could say that living things have the purpose of procreating to continue their species. However, we must realize that this is just our viewpoint, our interpretation. Rocks, trees, people, stars, and the universe have no intrinsic purpose. We can create purpose for ourselves, and that is good because it's a useful concept; but it's important to understand that purpose is a human construct. Remember, when proponents of ID begin their arguments by noting the design and purpose of nature, they are assuming what they want to prove. Don't be fooled by this logic sleight of hand. No intelligent designer is needed for purpose to exist, because purpose exists only in our minds.

Having Your God and Evolution Too

Many theists think that they can integrate their all-loving god with the reality of evolution. This idea is called "theistic evolution." Altho it is not antagonistic to science (because no sufficiently hidden god can be disproved by science), the idea fails theologically. Evolution is often a nasty, brutal process. An all-loving, all-powerful god could certainly do better. Greta Christina has an excellent article explaining this in depth: "Why You Can't Reconcile God and Evolution."

Abiogenesis

Even more basic than evolution is the field of science called abiogenesis, which deals with the origins of life from non-life. Simple experiments have shown that amino acids, the molecular units that make up proteins, can be made in lab conditions simulating Earth's early atmosphere, and they are even found in outer space. The other critical molecular types — lipids, carbohydrates, and nucleotides — can also result from natural chemical processes. These molecules are not living, but abiogenesis scientists are learning many ways that life could have originated from them.

Dr. Jack Szostak, winner of the 2009 Nobel Prize in Physiology or Medicine, has shown how primitive protocells could form with lipids as a cellular wall and a self-polymerizing nucleotide inside. These could grow and divide driven purely by physics, chemistry, and thermodynamics. Evolution could take it from there.

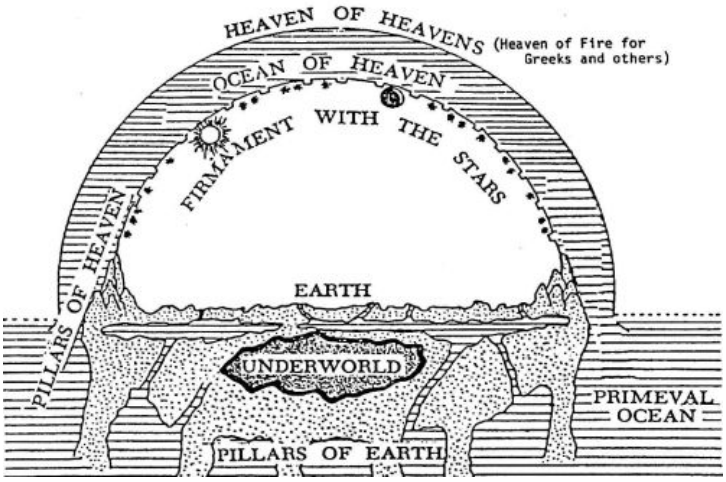
Many abiogenesis researchers think that life or its precursors could have started as RNA, and then evolved to DNA. A very interesting experiment showed that life-like evolution can occur in a test tube, with synthesized RNA enzymes that can replicate themselves without the help of any proteins or other cellular components. It's not biology, but it shows how evolutionary processes can happen in non-living molecules.

Remember that Earth had billions of years and countless environments to create life, while scientists have only been trying since the 1950's. I think that we've made good progress. And, even if we're not smart enough to understand the origin of life (or anything else), that doesn't mean that some god did it.

For more, see articles and websites listed in our "Abiogenesis" science section.

Evolution of Our View of Our Place in the Universe

A basis for the creationism idea is the concept that humans are at the center of the universe. The idea of a god used to make some sense, when people thought that the Earth was the unmoving center of creation, and humans were the reason that there was an Earth and everything else. The biblical universe was much simpler then. The flat Earth was at the base, and above was the vast solid dome called the firmament. It contained the stars and held back the celestial waters. Above that were Heaven and God:



We now know that the universe is almost unimaginably immense, complex, and ancient. It is the height of conceit for humans to believe that this whole universe was made just for us. Our perspective has changed. We are no longer at the center of the universe — not our planet, not our star, and not our galaxy. As people grow and mature, one of the big realizations is that they aren't at the center. It is the same for our species; it is time for us to realize that we are not at the center either.

It is also necessary to note that in order for Intelligent Design to be true, these areas of science would be largely false: evolutionary biology, paleobiology, cosmology, astronomy, physics, paleontology, archeology, historical geology, zoology, botany, and biogeography, plus much of early human history. These fields of science make predictions and get results. ID makes no verifiable predictions and gets no useful results, and thus cannot in any way be called a science. A simple example of this is the field of oil exploration, where you won't find any geologists using creationism or ID — because they don't get results. And, with large amounts of money at stake, the companies want results.

The most common reason people give for why they believe in God is the apparent design of the world. I think that this is part of why proponents of ID are putting so much energy into promoting their view and attempting to refute evolution. They realize that if the design argument were to fall, people might rethink their belief in God.

Many people say things like, "Isn't that baby cute?" or, "Isn't that sunset beautiful? There MUST be a god." I think that, if they are going to give their god credit for the apparent good and beauty in the world, they should also give their god credit for the evil and ugliness — such as natural disasters, babies with birth defects, and all the diseases. The morality of nature shows its evolutionary heritage. What loving, intelligent designer would have invented the diseases of the world, including a parasite that blinds millions of people and a gene that covers babies with excruciating blisters? This is part of the Problem of Evil, which I will cover later.

For more, see articles and websites listed in our "Evolution" science section.

Origin of Consciousness

Some people claim that consciousness is too mysterious or complex to be explained scientifically, therefore a god is necessary. Consciousness certainly is complex, and we probably can't completely understand it — in part because it is so subjective; but that doesn't mean that some god is its source any more that we need a god to explain the weather. Consciousness is an emergent property of a sufficiently complex living brain. Anyone who has had a mammal as a pet knows that animals can think and emote. They may not think as well as we do, because their brains aren't as complex as ours, but they definitely think and even dream. Biology also shows us that many mammals have brains that are very similar to ours — differing only in sizes of the functional sections. Even simple animals such as worms show a very limited consciousness by responding to their environment. The more complex the brain, the more complex the consciousness. We also know that when a person's brain is damaged the person can lose part of his consciousness. The sad cases where the brain is extremely damaged can result in a "persistent vegetative state" with no consciousness. A god isn't necessary to explain consciousness; functioning complex brains are.

Argument from Love

Where does love come from? Many religionists say that evolution can't explain love, that we need a god as the source for love.

Evolution actually explains love very simply. In primitive hunter/gatherer human societies (and even for many other mammals) it is strongly advantageous for a couple to stay together to raise their offspring. It's beneficial even in modern societies, altho ** not as critically. Without love a couple is less likely to stay together. Without love they would be far less likely to keep raising their children when things are difficult. With love, children are more likely to be loving themselves — to others and eventually to their own children. Love also helps bind extended families and friends, who can help in raising the children. Any humans who didn't love were less likely to have descendants. Any humans who did love were more likely to have descendants. Evolution has programmed us for love.

The feelings of love can certainly be wonderful, and they are created in our bodies by hormones. One of these is oxytocin, which is produced during sex and in breastfeeding women. It acts as a neurotransmitter in the brain and can create strong feelings of attachment and love.

We also see actions in other mammals that have all the indications of love. Mothers care for, feed, protect, and train their young. Wolves and elephants are especially known for forming pair and group bonds. Elephants even display compassion and altruism.

Argument from Morality

How about morality? Some people say that we need an absolute morality, and that we all have a sense of morality. They say that the only possible source for this morality is their god.

Many people have claimed that humans could not have created morality, that there is nothing in evolution or history that mandates it. This is wrong. In order for any social species to function, implicit or explicit rules of interaction are necessary. This is the basic function of morality — implicit rules of interaction that allow us to function cooperatively.

Some have even claimed that humans could not have had the concept of morality. I don't see why not. We're fairly intelligent. Human minds have created many ideas that are far more complex than morality. Why should morality be different?

The idea that we humans didn't create morality — that it came from some god — is insulting to us.

Explaining morality and altruistic behavior is not a problem, when we understand that humans are social animals. In order to survive, we mainly need to work together in groups. Groups of our distant ancestors that had individuals who worked together were more likely to succeed. Individuals who didn't cooperate in a group might have been kicked out of the group, and had their survival severely threatened. Groups that kept non-cooperative individuals were less likely to succeed. Laws are the explicit rules of interaction. Morality and laws are human constructs that come from basic human empathy, kindness and compassion, a desire to treat others as we wish to be treated, and our need to work together — not from some ancient static scriptures. Morality and laws have evolved as humans have evolved our culture. We are social animals evolved by natural selection, so the great majority of us will naturally desire the health of our families and the peace of our communities. Evolution has programmed us socially and biologically for morality and cooperation. Our morality comes out of our humanity.

For god-fearing religions, the only reason to be moral is the child's (or a slave's) concept of morality — be good or you will be punished. For healthy non-believers, we can see that altruistic behavior and morality grow out of the knowledge that making others happy makes us happy.

Even other primates such as chimpanzees, monkeys, and apes exhibit empathy and morality. For more about this, see "Scientist Finds the Beginnings of Morality in Primate Behavior."

Of course, the natural world is not loving or moral, along with many humans. We thus have the continual dilemma of how to survive with this conflict, using our natural self-interest.

If people claim that their god is the source of morality, they are faced with defining morality and whether it is dependent on their god. Plato said it best, "Is what is moral commanded by God because it is moral, or is it moral because it is commanded by God?" If it's the former then God is not needed. If it's the latter then morality depends on God's whim, and ethics are unnecessary.

Let's look at what happens when people claim to get absolute morality from a god or his "holy" book. I say that such religious absolutists don't have morality; what they have is a code of obedience — which is not the same. This god sets what is supposedly moral, and they obey. If this god were to say that murder and theft were moral, theists would have to kill and steal to act morally. Actually, this is exactly what is happening with the suicide bombers in the Middle East. This is also what was behind the Crusades, the Inquisitions and 9/11. The fact that we find this so abhorrent shows that morality does not come from a god. Gods fail as a source of morality.

Many religious people like to claim that non-believers have relative morality, while they have absolute morality. However, since no Christians or Jews are stoning those who work on the Sabbath, and no Muslims are slaying transgressors wherever they catch them, they are choosing which "holy" laws to follow and which to ignore. We all have relative morality.

For Christians, if their morality is based on fear of punishment from their god then they have an "out" where they can be absolved of their sins (usually by an appropriate Earthly authority). This is a good marketing scheme, but it makes for flimsy moral system of punishment and reward.

Monotheistic religions typically define most or all of morality as dealing with humans and their "sins" against their god. People are then moral to each other only to obey their god and escape his punishment. This ignores the concept of morality that deals directly with the consequences of our actions on other people or conscious beings. This morality is about the reality of our impact on others, not on our relationship with an imaginary god who can be appeased with a few magic words.

A large philosophical problem that religious moralists face is where to get the word of their god or gods. They can get it from "divine" revelation or from supposedly "holy" books. Each of these sources faces a problem; how do we know that this is the true word of the god? I've already discussed revelation, so let's look at the idea of a holy book. I am most familiar with the Christian Bible, so that's what I'll address.

The Bible is touted by many as a source of ultimate knowledge and morality. It is said to be God's perfect words to humankind. Have you ever read it? It contradicts itself in many places, is often difficult or impossible to interpret, and is largely simply boring. Some of it looks to me like it was written under the influence of hallucinogens. It contains two very different lists of Ten Commandments (in three sets) and three sets of paternal ancestors for Jesus (with one lineage just being the Holy Ghost). The better-known set of Ten Commandments (given in Exodus 20:2-17 and Deuteronomy 5:6-21) even says that children can be punished for the sins of their great-grandfathers! The lesser-known set (in Exodus 34:12-27) tells us to not cook a young goat in its mother's milk. Are these the words of a perfect moral being?

The Christian Bible is also conflicted about homosexuality. Altho there are notoriously anti-gay verses, 1 Samuel 18:1-3 clearly refers to two men loving each other. Even the Jesus character is hinted at as being gay in John 20:2. This shows that Christians have little to stand on when they try to push their religion's view of sexuality on the rest of us. Their logic is based on the primitive concept that we don't want to make their (all-loving?) god angry, or he's going to do something bad to us.

Many Christians think that the Bible supports "traditional" marriage. However, nowhere does it clearly state "only one man and one woman" or "monogamy" or any words to that effect, but references to abstinence and polygamy are plentiful.

The Bible also has the purported histories of many rapes, slaughters, and other mass killings, most of them directed or condoned by the god Yahweh. They even note how pregnant women were sliced open — so much for Yahweh being against abortion. In one well-known story, Yahweh drowned almost everyone and everything on the planet merely because he didn't like the activities of some of the people (that he had created). In another story, 42 children were killed in the name of Yahweh, just for calling a man bald. In addition, the Bible has more than 50 listings of death penalties — some for supposed "sins" that most of us don't even consider to be morally wrong, such as working on the Sabbath or eating blood. Do these tales and penalties show the actions of a loving god? The god of the Old Testament is a capricious, petty, pathological, vindictive, schizophrenic, mass-murdering tyrant — not a paragon of moral virtue. And, Satan often comes off as the good guy. After all, how many people did *Satan* kill? The god of the New Testament is a little nicer, as described by the character Jesus. But Jesus and this god also introduced eternal punishment — not a very kind or loving thing to do. This New Testament god also kept the idea of a human blood sacrifice, even demanding it of his own son. If you still think that morality should come from the Christian Bible, I ask, what do you think about slavery and child abuse? Not once in the entire Bible is slavery or child abuse (other than child sacrifice) condemned, not even in the writings about Jesus. In fact both are condoned in many places; there are over 20 verses on slavery and over 30 verses advocating child abuse. Even the Jesus character had recommendations about whipping and chopping up slaves. It's obvious that any kind person could do a better job of defining morals than what is in the Bible.

Since morality changes from the Old Testament to the New Testament, the Bible is not an infallible source for morality — and morality is not absolute. The Christian Bible, its god, and its savior all fail the morality test. Sam Harris has done an excellent job of demolishing "Christian morality." Mr. Deity has a more humorous take.

Jesus died for our sins. This is one of the primary moral points of Christianity, and it is glorified human sacrifice, or formally known as atonement or substitutive sacrifice. The story of the sacrifice of Jesus and the release of Barabbas is just a re-telling of the ancient Hebrew action of scapegoating, as explained in Leviticus 16. Many other religions have also practiced substitutive sacrifice when they killed sacrificial animals or humans. What kind of morality is this, where an animal or person has to die because of what others have done (or will do)? When we look at cultures that sacrificed humans, we call them barbaric and primitive. It makes no difference if the

person being sacrificed agrees; it is still blatantly, repugnantly immoral and abominable. The Christian ceremony of communion is based on this blood sacrifice, and is just ritualized cannibalism and vampirism. Note also that the Roman Catholic Church's doctrine of transubstantiation holds that during communion the bread and wine actually become the body and blood of Christ. This doctrine makes Leviticus 7:27 problematic, because it calls for the execution of those who eat blood.

Using religion as a source for morality completely collapses when we look at religious positions now and in history. There are religious people with different positions on such moral issues as the death penalty, abortion, birth control, and gay and women's rights. How can this be, if they all get the same divine words from the same god? Restrictions on birth control have added to the misery in the world by causing more disease and more births on a planet that already has too many people. Racism, misogyny, and slavery were once considered perfectly moral by large portions of humankind, and were seen as having a religious basis. Also, the killings done in the names of different gods, by most religions, are legendary. Our culture and laws have changed, and these evils are no longer acceptable in modern society. Religion cannot give us reliable answers to moral issues. Morality is a social and legal construct, not a religious one. Religion and gods fail as sources of morality.

Sam Harris, in his book, *The Moral Landscape: How Science Can Determine Human Values* shows that we don't need religions or imaginary gods to determine objective morality. If we define morality in terms of human and animal well-being, Sam argues that science can do more than tell how we are; it can, in principle, tell us how we ought to behave.

Argument from Authority

I think that most people begin their belief in a god because a book or someone said that a particular god exists. This is called the "argument from authority." The next section will discuss using people as authorities. The three best known books used as sources for religions are the Quran for the Muslims, the Bible for Christians, and the Torah for the Jews.

I've collected a few quotes from the Quran, to show some of its weaknesses.

The Christian Bible includes the Jewish Torah as part of its "Old Testament." Is it a reasonable source? We've already examined some of its moral faults. Let's look at its historical veracity.

People say that archeological evidence shows that some places and people mentioned in the Bible really existed; therefore the Bible is true. This is like saying that *Gone With the Wind* is true because the Civil War actually occurred. Let's first look at four biblical personages — Moses, Abraham, King Herod the Great, and Jesus — and the biblical town of Nazareth.

There is no reliable, extra-biblical reference to Moses or Abraham, and they are likely apocryphal. In fact, there is no reliable evidence that the Jews/Israelites were ever in Egypt. Even Israeli archaeologists have acknowledged this, (and Israel has the most to gain from a divine land grant).

Did Jesus Exist?

Like most people (especially those raised Christian, like I was), I had always assumed that Jesus had really existed, even though he may not have been divine. After examining the biblical, extra-biblical, and early Christian evidence, I have concluded that there is no reliable evidence that Jesus actually existed — and significant evidence that he was purely mythical.

The earliest known references to Jesus are in the writings of Paul (ne Saul), who had a 'vision' of Jesus while he was on the road to Damascus. Paul's writings are part of the epistles, which are thought to have been written after 50 CE*. If there had been an actual Jesus, Paul should have known much about his life. He didn't. Paul and the other epistle writers (including Peter) don't seem to have known any biographical details of Jesus' life, or even the time of his earthly existence. They don't mention Bethlehem, Nazareth, Galilee, Calvary or Golgotha. They also don't mention any miracles that Jesus was supposed to have worked, his baptism, his moral teachings, his trial, or the empty tomb.

The main biblical references to Jesus are in the gospels, which were written by unknown authors after 70 CE (and quite possibly decades later). In a semi-literate and superstitious society, that's a long time after Jesus' supposed life — a long time for myths to grow. Most scholars agree that the first mention of what we call the gospels was by Justin Martyr in about 150 CE, altho he didn't refer to them by their current names. The earliest gospel, now known as Mark, betrays its author's lack of knowledge of the geography and social situation of Palestine — showing that the author was not a local. (Mark 5:1-13, Mark 11:1, Mark 10:12) Why do Mark and John begin with Jesus already a grown man — with no virgin birth, magic star, or other childhood stories? If the gospels were written by eyewitnesses, why don't they describe Jesus? Why are they written in third person format (like a story), instead of first person format? Why do the gospels of Matthew and Luke

plagiarize up to 90% of Mark (and add the childhood stories)? The gospel of John hardly refers to Jesus as a real person with a real life. Like Paul, the author viewed Jesus as more of a sky-god.

An example of story-telling is Matthew 2:16, which refers to the supposed “slaughter of the innocents” by King Herod (74 BCE – 4 BCE). This event is not mentioned by any historian of the time (or even other gospel authors), and is thus a complete fabrication which fulfilled a common story line for saviors.

As for the extra-biblical historicity of Jesus, there is absolutely no reliable contemporary evidence that he ever even existed. He made no impression on any historian of the first century. If Jesus existed and if the spectacular events in the gospels really happened, they would have been noted by many writers — including Philo of Alexandria, Seneca the Elder, Pliny the Elder, Justus of Tiberius, and over thirty others. None of these men referred to Jesus or the fantastical biblical events. The earliest extra-biblical supposed references to Jesus or Christ are in one paragraph and one sentence in the writings (about 93 CE) attributed to the Jewish historian Flavius Josephus (who also wrote about Hercules), and the Roman historian Cornelius Tacitus (about 117 CE). However, there is overwhelming evidence that they were added much later. The reference by Josephus was almost certainly created by “church historian” Eusebius, who first referred to it in about 324 CE — for Emperor Constantine's Council of Nicea. The reference by Tacitus was probably added in the 1400's (likely in 1468 by Johannes de Spire of Venice), because no mention is made to it in any known text prior to then.

The Jesus story also shows extensive similarities to other myths of the time (especially Dionysus, Mithra, and Horus). Some early Christians attributed this to Satan who went back in time and created the religions that "copied" Christianity. Jesus is worshiped on Sunday because he is a sun god, like Mithra, Zeus/Jupiter, Horus, Attis, Dionysus, Adonis, Tammuz, Hercules, Perseus, Bacchus, Apollo, Helios, and Sol Invictus — whose birthdays are also on the old winter solstice of December 25, when the sun is “reborn.” There were more than a dozen other deities and saviors who were resurrected after violent deaths — Mithra, Osiris/Serapis, Inanna/Ishtar, Horus, Perseus, Bacchus, Attis, Hermes, Adonis, Hercules/Heracles, Tammuz, Asclepius, and Prometheus. Christianity just told the story the best, and managed to get control of the government under Constantine I.

So, let's look at the evidence we have. From the earliest Christian writers such as Paul, we have little to indicate that Jesus was a real person. And, we have strong evidence that he was just a spiritual sky-god to them. From the later (and unknown) writers of the gospels, we have a story that grew over time, with more fantastical events added as the story was told and re-told — just like a myth. From the historians of the first century we have nothing, and they would have written about him if he existed.

For a deeper look into these ideas, see "Did Jesus Really Exist?".

It's also interesting that the Prophet Muhammad may not have actually existed. Muhammad Sven Kalish, an Islamic theologian, came to that conclusion after he studied the historical evidence for the prophet's life.

Science vs. Religion

One large difference between science and religion is this: In science, if the facts don’t fit the theory, the theory is modified or tossed out. In religion, if the facts don’t fit the theory, the facts are often tossed out. All too often, people reject evidence and the findings of science because they conflict with their religious assumptions. With their minds thus unhinged from the real world, they can have problems distinguishing fantasy from reality.

What does i t mean, when we believe something based on an authority? It means that we are taking something or someone else’s words as truth, without a real knowledge ourselves. We all do this for many subjects. Our first authorities are the people who raise us. This is because we are born with no innate knowledge of the world, and have to learn it from scratch. To help us learn quickly, our brains are wired in childhood to largely believe without question what we are taught. We quickly absorb whatever our parents teach us — including their religion. For most people, their parents' religion thus becomes the “one true religion” — as most of us know from experience and as shown by many studies.

We soon start learning from other sources, such as friends, teachers, books and other written material. As we learn and experience our world, we develop a map in our minds of what the world is like. This map becomes a truth filter. When we look at a new idea, we typically compare it to the mental map that we have. If the idea fits well in the map, we can add it. If the idea doesn’t fit, we have a problem. We must either discard the idea, or make a change to the map. Change is difficult and often painful, so many people tend to discard ideas that don’t fit their mental maps.

When we use someone or something as an authority, we often bypass the comparison process and plug the new ideas directly into our maps. This can save us a lot of research time and mental work. However, it also opens us to believing in things and ideas that aren’t true. Since we can’t be experts on everything, we thus have a problem — what and whom can we implicitly believe? For

me, since I want my mental map to be as accurate as possible, I have chosen the methods of science and reason as my ultimate authority. Science and reason have been shown to be the best predictors of how the world functions. Science and reason aren't perfect, but they are self-correcting — using the scientific method. Other sources of authority are too prone to misinformation.

Altho we should not use them as authorities, it's interesting that 93% of the members of the National Academy of Sciences do not believe in God.

Argument from Prophecy and Miracles

Now, let's discuss prophecies and miracles. I am continually astounded at just how little evidence people are willing to accept for proof of these. Prophecies that did come true are often easy to explain, once you understand that it's easy to predict something if it has already occurred, or that actions were done merely to fulfill prophecy, or that events or prophesies were fabricated. There are also many prophesies that haven't come true. As for religious miracles, the evidence is so slim that they should be relegated to hearsay.

One 'miracle' that many people use is their own (or that of someone else) survival from a dangerous episode, or recovery from a disease or injury. They rarely seem to note that many others have not been so lucky. It's as if their god loves only them (and perhaps their family), and doesn't care about the others. Of course, we never hear from people who *almost* survived a car wreck, airplane crash, or disease; we only hear from those who survive. I call this the "survivor's logical fallacy." The generic term is the "anecdotal logical fallacy".

Also consider the idea that, if a person believes that their god can do miracles, their god also chooses not to do miracles. Yahweh could have stopped the Catholic priests from raping young chidren under their care, but chose not to. Perhaps Yahweh has had more important concerns, such as deciding which high school football teams won in games where both sides prayed for divine help.

Even if truly inexplicable 'prophesies' or 'miracles' have occurred, that does not mean that there's a god. It could just mean that a person has peculiar skills or technological help that we don't understand. We all can imagine how easy it would be to go to a primitive tribe of humans and impress them with 'god-like' skills that are the result of our technology, medicine, or knowledge. It is reasonable to consider that we could be fooled by technology that is far in advance of our own. As famous science fiction author Sir Arthur C. Clarke wrote, "Any sufficiently advanced technology is indistinguishable from magic."

Let's consider one well-known 'miracle,' the resurrection of Jesus Christ. First, as I noted, there is no verifiable evidence that Jesus ever even lived. Second, even if he did exist, there is obviously no evidence that he actually died on the cross. If Jesus didn't die, his supposed 'resurrection' was much more possible in a purely natural sense. Some people think that the martyrdom of his followers proves the resurrection of Jesus. At best, it simply proves their bull-headed beliefs, not actual fact. At worst, they were fictional characters or deluded people. Recent examples of deluded followers are the Jonestown and Heaven's Gate mass suicides. We don't think that they proved anything.

As I've noted, the story of Jesus' lineage is also confusing. If Joseph didn't father Jesus, then why does the Bible show Joseph's ancestors — with two different lists? The historical reason for the conflicting stories of Jesus' lineage lies in the fact that the idea of the virgin birth (with the "Holy Ghost" as the father) was added later. The original story had Jesus descended from David (thru Joseph), to fulfill prophecy.

Another prophecy that was supposedly fulfilled by the character Jesus was the idea that he came from Nazareth. This resulted from an unknown gospel writer's confusion between Nazirite, Nazarene and Nazareth.

I've found three excellent quotes that sum up the problem of prophecy and miracles well:

> "No testimony is sufficient to establish a miracle unless that testimony be of such a kind that its falsehood would be more miraculous than the fact which it endeavours to establish."
> — David Hume, *Of Miracles* (1748)

> "Is it more probable that nature should go out of her course, or that a man should tell a lie? We have never seen, in our time, nature go out of her course; but we have good reason to believe that millions of lies have been told in the same time; it is, therefore, at least millions to one, that the reporter of a miracle tells a lie."
> — Thomas Paine, *The Age of Reason* (1794)

> "It is a fact of history and of current events that human beings exaggerate, misinterpret, or wrongly remember events. They have also fabricated pious fraud. Most believers in

> a religion understand this when examining the claims of other religions."
> — Dan Barker, in "Did Jesus Really Rise From The Dead?"

With these insights in mind, which is more likely — that true prophesies and miracles have actually occurred, or that they are just tall tales?

Argument from Religious Faith

Next, let's look at religious faith. What is faith? It is the firm belief in something for which no proof exists — simply because you want it to be true. I think that faith is belief without evidence, or pretending to know things you don't know. The Bible, in Hebrews 11:1, gives this definition: "Now faith is being sure of what we hope for and certain of what we do not see." Religious faith is not inhibited by reason or evidence, does not help us discern the difference between truth and falsehood, and can thus be used to justify any proposition. As Mark Twain once said, "Faith is believing what you know ain't so." Religious faith proves nothing, except the bullheadedness of the believer. If you have faith, you don't need proof. If you have proof, you don't need faith. Therefore, any attempt to use faith as a basis for proof is intrinsically doomed to failure. Also, what good is faith if it has you believing in something that is not true? A recent example of absolute faith and its possible consequences illustrates the objective failures of religious faith. I ask, on September 11, 2001, whose faith was the most effective? I say that it was the faith of the suicidal pilots of those three planes that crashed into the buildings. If you believe in the primacy of religious faith, there is no way to objectively differentiate between yours and theirs, for it is all purely subjective. Religious faith fails as a proof for a god.

Dan Barker, of the Freedom From Religion Foundation, wrote, "If faith is a valid tool of knowledge, then anything can be true 'by faith,' and therefore nothing is true. If the only reason you can accept a claim is by faith, then you are admitting that the claim does not stand on its own merits."

If there were one true god, there should be one true religion — and it's obvious that this isn't true. The theistic world is divided into several different main religions, each of which is divided into smaller groups. And, many of those are divided into even smaller groups. The Christian faith, for instance, is divided into over 33,000 denominations.

For anyone who believes that they believe in the one true god and have the one true religion, the fact that many others believe very differently should cause cognitive dissonance; but it doesn't seem to. This shows the solipsism-style power of religion.

Religious faith is the antithesis of rational thought. This is why so many religious leaders actively preach against rational thought and even advanced education. They realize that rational thought and education can destroy religious faith and result in fewer followers and less money for them. They know that children are best indoctrinated — before the brain is developed enough to separate fantasy from reality.

Many good theists think that they can have both religious faith and rational thought, by being moderates and not fundamentalists. Altho this certainly makes for a better pluralistic society, moderates enable the fundamentalists by preventing rational examination of religion, which the moderates and the fundamentalists would lose. Also, the fundamentalists often view themselves as the true followers of the faith. They see the moderates as religious failures because they don't really follow the edicts of the religion, but mix in secular/worldly values. And, even Jesus didn't like moderates.

Logical Arguments for God(s)

How about logical arguments for the existence of God? Let's look at a set of proofs for God that relies on reason alone. It is called the **Ontological Argument**, and it comes in at least three forms. The first basically says that God exists because we can conceive of God. One of the characteristics of God is existence; therefore, God exists. The second form begins with the definition that God is perfect. Existence is more perfect than non-existence (whatever that means), therefore God must exist. The third form defines God as the creator of the universe. Since the universe exists, God must exist. These arguments are so obtuse and unfalsifiable that they are ridiculous. They just involve confusion between the existence of ideas and the existence of real things. Simply saying that something like a god exists does not make it exist. All that exist are the ideas (in our minds) of Satan, Jesus, God, an invisible pink unicorn, and many other concepts.

There are some people who claim that God is the source of logic, therefore we can't even use logic without presupposing the existence of God. They say that logic can't be created from unformed matter; therefore God formed the matter and created logic. This argument is known as **Presuppositionalist**, or the **Transcendental Argument for the Existence of God**. The names are fancy, and my response is simple. We made the rules of logic up, just like we made up the rules of mathematics. Logic is a pattern of thinking, and patterns can emerge from simple rules.

There are many examples of complex patterns coming out of simple rules, such as snowflakes and waves forming. There is nothing in our everyday experience that indicates that some higher power is necessary for these patterns, and there is nothing that proves that a god is necessary for the patterns we call logic. Additionally, the Presuppositionalist Argument gives little indication as to the qualities of the god it presupposes — much like the First Cause and Ontological arguments. The Presuppositionalist Argument is just another way of answering a supposedly difficult question with the simple response, “God did it.”

If anything is not logical, it is most religions. I am most familiar with Christianity, so let’s look at its basic claims:

- A supernatural god exists that created everything and intervenes in the natural world.
- This god had a son whose mother was a virgin who had been impregnated by the god in the form of a ghost.
- This son did many miracles, including making a dead person alive again.
- This son was killed, and came back to life one and a half (not three) days later.

There is not any empirical, verifiable evidence for any of this. There is also much experience from everyday life that virgins can’t get pregnant from ghosts, and that people who have been dead for a while can’t come back to life. Thus, belief in the above claims is illogical.

Pascal’s Wager

There is an argument for belief in God that is called Pascal’s Wager, named for Blaise Pascal who conceived it. The argument goes like this: Either there is a god or there isn’t. If you believe in God, and God exists, then you win big time and go to Heaven. If you don’t believe in God, and God exists, you lose big time and go to Hell. If there is no god, then you haven’t lost much by believing. So the obvious choice is to believe in God, because it’s simply the best bet.

Pascal’s Wager has several faults. The biggest problem is that it’s not a proof of any god’s existence; it’s just an argument for believing, a method of extorting the gullible thru fear. Like many other such arguments we have discussed, it also fails to denote exactly which god it refers to. Pascal’s Wager could be applied to any god that offers rewards and punishments. Taken to the extreme, following the wager would necessitate betting on the god with the worst hell, so it could be avoided. It's impossible to know which god to worship, and which (perhaps jealous) gods to spurn. I doubt if many Christians would convert to Islam if the wager were presented by a Muslim who told them that Muslim Hell is worse than Christian Hell, and Muslim Heaven is better than Christian Heaven.

Pascal’s Wager assumes that the chosen god's mind is knowable, and that he doesn't mind people believing in him for explicitly selfish reasons. Perhaps he actually prefers independent thinkers such as atheists, not obsequious followers. Since the Christian god Yahweh is on record as having lied, there's no way to know his intentions. It would be quite possible for a true believer to discover on Judgment Day that the destination was not Heaven. Yahweh, in his infinitely mysterious ways, had other plans; and there would be no appeal or debate with an omnipotent being.

Another problem with Pascal’s Wager is that it implicitly assumes that the odds of the two possibilities are similar. Since the odds of the Christian, Jewish, or Muslim god existing are zero, the wager creates a false dilemma. The wager even goes against the doctrine that many religions have where gambling is sinful. Note also that the existence of the wager and the fact that so many people think that it's relevant illuminate the lack of actual evidence for God.

Pascal’s Wager also depends on the idea that you don’t lose much by believing. This has been false for many who have trusted in their god for help or guidance, instead of seeking reality-based solutions. People have fought, killed and died for their belief in their god. Far too many have died because they (or their parents) chose prayer instead of medicine. Swords, bullets, poison, and poisonous snakes have killed many who thought that they were protected by their god. Even without these more dramatic effects, believers often devote significant time, energy and money to worshipping their god.

Beliefs in a god (and the often concomitant ideas of divine punishment and reward) too often make people more willing to accept inequalities in this life. Low-paid factory workers and slaves were taught that their rewards were in the afterlife, so they should be meek and obedient in this life to ensure their (imaginary) rewards. Even the factory and slave owners could think that they were part of their god's divine plan, and thus deserved their earthly rewards.

God-belief has real expenses that can be large or destructive.

The last problem with Pascal’s Wager is that it completely ignores and even denigrates intellectual integrity and honesty; the wager assumes that people can believe something just because they want to. As an example, let’s talk about belief in Santa Claus. Don’t we have more respect for a child who figures out that Santa doesn’t exist, and says so, rather than continuing to lie so he can get more presents? It’s a sign of growing integrity and maturity for children to stop believing in Santa. Similarly, adults can give up belief in a god when they realize that there’s no real evidence

for their god. Christians can quit being “sheep” or “children of god” and become intellectually honest.

The loss of intellectual integrity and honesty engendered by Pascal’s Wager gives some insight into how apparently rational people can behave so irrationally. By accepting the wager, they have (perhaps implicitly) given up these important traits.

Comfort, Meaning, and Emotion

I think that many people continue to believe in a god because it gives them comfort; it’s an *emotional* response. It allows them to pray to their god and think that they’re actually accomplishing something. It gives them feelings of structure and meaning in their lives, and makes them feel connected. It helps remove the fear of death and nonexistence that most of us experience. Belief in the Christian god helps remove people’s fear of Christian Hell that has been pounded into their minds. Belief in a god also makes the world more black and white, less confusing, and easier to deal with. But, is this any actual proof for the existence of a god? Is *comfort* a good indicator of the truth of external reality? I don’t think that it is, any more than the reality that astrology is not true simply because people find comfort in it. The universe does not owe us comfort and meaning; we create them ourselves. George Bernard Shaw said it best. “The fact that a believer is happier than a skeptic is no more to the point than the fact that a drunken man is happier than a sober one. The happiness of credulity is a cheap and dangerous quality.”

It can also be said that religion gives people comfort in a world torn apart by religion.

Freud noted that religions are narcotizing. I think that addicts will do or think almost anything to continue getting their fix. Some people eventually see that freedom from religious addiction is an intellectually and emotionally healthy change, although withdrawal can be painful.

How Belief in God Affects Our World

This question about the existence of a god is not merely a philosophical exercise; it has pertinent applications to the world in which we live. I will talk about five areas — history, education, politics, medicine, and everyday life.

God and History

Millions of people have been killed in the name of some god, and most wars have had religion as a central cause (usually with God backing both sides). The American Civil War had leaders and ministers on both sides telling their followers that God was with them, with southern preachers reminding their flocks that God was in favor of slavery. More recently, the leaders on both sides in WWII exhorted their people that God was on their side, and used religion to unite them.

Religion was explicitly behind the Crusades, the Inquisitions, and the mass killings of “witches” and heretics. Many of these heretics were only guilty of expressing ideas that the churches didn't like, but are commonly accepted now in science and social reform. With the threat of heresy, the churches effectively set back humankind's scientific and social advancement by hundreds of years. Religion is also at the root of most of today's international problems. Just imagine how much more peaceful the world would be without beliefs in gods causing so much strife.

God and Education

In education, at the same time that we have a rise of fundamentalist religions in the U.S., the youth of America are scoring lower on scholastic tests. Now, cause and effect are obviously difficult to establish for this; but it must be harder for many of them learn to think rationally when they are taught, by their parents or religious schools, such irrational concepts as creationism and invisible, immaterial beings. Also, as I already noted, many religious leaders actively preach against rational thought and even advanced education.

Here are some disturbing statistics, partly from a 2004 CBS News Poll, a 2004 Gallup poll, and a Gallup poll of U.S. teenagers.

- 81% of U.S. teenagers think that God controlled or influenced the origin of humans. (Gallup)

- 65% of Americans think that we should teach both creationism and evolution in schools. (CBS)
- 55% believe that “God created humans in present form.” (CBS)
- 45% believe that the world is less than 10,000 years old. (Gallup)
- 37% think that we should teach just creationism in schools, including 60% of evangelical Christians. (CBS)
- 36% believe in telepathy.
- 35% say that evolution is well supported by the evidence. (Gallup)
- 35% say that evolution is *not* well supported by the evidence. (Gallup)
- 25% believe in astrology.
- 25% think the sun goes around the Earth.
- 13% think that Joan of Arc was Noah’s wife.
- 13% accept the standard scientific account of evolution, without a god’s involvement. (CBS)

Belief in an omnipotent deity allows people to use sloppy logic and not have to think very hard. If they are faced with a difficult question about why an event occurred, all they have to say is, “God did it.” Then the reason behind the event is a mystery. This is the old “god of the gaps” answer, and it's an intellectual cop-out. It answers nothing; it predicts nothing; and it teaches nothing. To counter this we must ensure that scientific naturalism and critical thinking skills are taught in our schools. As students understand better how the world works, their personal gods of the gaps will diminish. If we want to have a strong democracy, our students and future voters must understand the basic facts of the world around us, in order to make informed decisions. If we want to continue leading the world in science, medicine, and engineering, we must make sure that our students learn real science — not religious pseudoscientific nonsense.

God, Politics, Government, and Society

Ever since a tribal leader or medicine man discovered the power of mixing religion and group leadership, religion and government have been intertwined. If followers can be made to believe that they have an immortal soul that can go to Heaven, then the leader just needs to convince them that their heavenly destination is assured if they obey his laws or fight his battles. Fearless warriors are hard to vanquish. Plus, other tribes can be conquered — spreading the religion like a virus.

God bless America. We’ve all heard it countless times, especially from politicians. It is a very dangerous concept, for it can give leaders the arrogance and invulnerability of supposedly divine backing where they can do no wrong. It can also give them the idea that they have the responsibility to impose their religious and political beliefs on U.S. citizens and on other countries — whether wanted or not.

The Roman leaders used to allow any religion (as long as it didn't interfere with the state), but they required that every Roman citizen pray to the Roman gods, to ensure victory for their armies. Here’s a quote from the Roman philosopher Seneca the Younger (5 BCE - 65 CE):

> "Religion is regarded by the common people as true,
> by the wise as false,
> and by the rulers as useful."

Does this sound familiar? U.S. politicians keep pulling their god and religion into politics. Former President George W. Bush’s mangling of the wall separating state and church is well documented. In 1954, when President Eisenhower signed the bill adding “under God” to the Pledge of Allegiance, his words explicitly showed that the idea was to link religiosity and patriotism. In 1988 President Reagan established the National Day of Prayer. On March 27, 2003, House Resolution 153 passed by an overwhelming vote. It urged the President to issue a proclamation “designating a day for humility, prayer, and fasting for all people of the United States.” We are “to seek guidance from God to achieve a greater understanding of our own failings,” and “to gain resolve in meeting the challenges that confront our nation.” The Senate *unanimously* passed a similar bill. These government actions violate the spirit, if not the letter, of the First Amendment. I say that the U.S. is becoming a de facto *theocracy*. Do you agree?

Religion has entered policies of the U.S. federal government. Faith-based groups are receiving billions of federal dollars, with little or no oversight. Federally sponsored sex education courses often follow Christian ideas, and don't teach facts that would help our youth deal with their sexuality. The FDA has based rulings concerning contraception on religious grounds, despite contradicting findings from their science boards and even the will of a vast majority of the U.S. population. Former President George W. Bush used his first veto to block funding of stem cell research, because of his religious views.

Religion has even entered into laws of many U.S. states. Nine states discriminate against atheists in their constitutions, with seven states prohibiting atheists from holding office. One state even prohibits atheists from testifying in court. Six states still have anti-blasphemy laws. Fortunately, these laws aren't generally followed, and would (hopefully) be found unconstitutional if ever challenged in court. Many states prohibit same-sex marriage, based on religious ideas. Thirty-nine states allow religious exemptions from child abuse or neglect charges, while thirty-one states allow

a religious defense to a criminal charge, and nineteen states allow a religious defense for felony crimes against children. Parents can beat their children or allow them to die without needed medical help, and then basically claim, "God said I could." Where is the vaunted pro-life zeal of many Christians? Or, does it only apply to what they call "pre-born" children?

A basic source of incompatibility between religion and democracy lies in how each deals with points of view that disagree. Religion is usually based on divisive absolutes like right and wrong, good and evil, God and Satan, us and them. Democracy needs to be based on compromise. This is why democracy functions best when religion and its divisiveness are kept out of government.

True freedom must give us the ability to do and say what many others may disagree with, or freedom means little. It's always easy to allow people to do what you agree with; the real test of freedom comes when people say or do what you disagree with. This is another reason why religion must be kept out of a democratic government. Few religions grant other than mild disagreement — often branding critical or disliked ideas and people as heretical. Democracy, however, thrives best when people are willing to openly disagree.

Many religious and political leaders say that our freedoms and liberties come from God. I say that freedoms in a society do not exist without the ability to enforce them. In the U.S. this power originates in our Constitution and is implemented by our officials enforcing it. In many ways, we can say that our government created our freedoms. If God is the source of freedom, why was there so little of it before our nation was formed? And, why does it take a government to enforce that freedom?

Before the U.S. was founded, most governments and religions worked together to stay in power — limiting whatever rights and freedoms the common people might try to obtain. The concept of a religion actually promoting the rights of the individual is a relatively recent development.

It's important to remember that the U.S. was founded as the first country that derived its power from a purely secular, nonreligious basis. All nations before then had kings and queens who often used their supposed "God-given divine right" to rule. Instead of this top-down power structure, the founders wisely created a government that derived its powers from the consent of the governed. This is why the U.S. Constitution begins with "We the People..."

The United States was also founded in direct contradiction to the Christian concept of submission to the current government, as put forth in Romans 13:1-7. These verses are a biblical source of the divine right of rulers, and state that God established the authorities — so rebelling against them is rebelling against God. Fortunately, our founding fathers were more interested in human rights than the rights of the Christian god and his minions.

Our nation's founders also realized the inherent divisiveness of religion and the many bloody wars that had been fought over religion, and kept it specifically out of our Constitution and government. God is not even mentioned in our Constitution. Religion is only mentioned twice — both times to keep religion and government separate. The Treaty of Tripoli, written during the administration of President George Washington, signed by President John Adams, and *unanimously* approved by the Senate, stated, "The Government of the United States is not in any sense founded on the Christian religion." How could we as a nation have forgotten such an important fact?

Many Christians are still trying to make the United States a Christian nation. They will point out that many of the founding fathers were religious, and that "God" and "Creator" are mentioned in the Declaration of Independence. What they don't mention is the fact that the religion of some of the founding fathers was deism (not Christianity), the fact that the Declaration of Independence refers to "Nature's God" (a deistic god, not the Christian god), and the fact that the Declaration of Independence is not a basis of the government; the Constitution is. What these Christians also won't mention is that, altho many founders were religious, they saw the wisdom in separating government and religion.

It's often said that the phrase "separation of church and state" does not appear in the Constitution. The phrase originated with Thomas Jefferson, the author of the Declaration of Independence, when he wrote, "I contemplate with sovereign reverence that act of the whole American people which declared that their legislature should make no law respecting an establishment of religion, or prohibiting the free exercise thereof, thus building a wall of separation between church and state." This was in a letter to a Baptist church, to reassure them that the U.S. would keep religion and government separate. The Baptists were painfully aware of that danger, because of their own recent experiences of not being the favored religion in some states and other countries. Supreme Court Justice Harry Blackmun said it best. "A government cannot be premised on the belief that all persons are created equal when it asserts that God prefers some."

Christians sometimes claim that our government is based on the Bible. They fail to note that nowhere in the Bible is there any reference to democracy, trial by jury, Habeas Corpus, civil rights, woman's rights, freedom of religion (which is specifically forbidden), or many other rights that we take for granted. What we find in the Bible are slavery, genocide, rape, incest, child abuse, adult and child sacrifice, murder, misogyny, and bigotry. The only two Biblical concepts in the original U.S. Constitution were slavery and the low status of women.

Many people claim that the atheism of Nazi and Communist countries shows the supposed evils of atheism. For Nazism we must note that Germany was largely Christian, their army and badges had Christian themes, and even Adolf Hitler said he was Catholic and followed Christ. Whether he actually believed what he said is debatable. What is not is debatable is the fact that millions of Christians (in Germany and around the world) believed that Hitler was Christian. Also, in the 1930's and 40's Germany was paying the Vatican about $100 million per year, having mutually signed a concordat in 1933. It's easy to conclude that this money helped persuade the pope from doing anything substantial about the Holocaust or other crimes perpetrated by the Nazis. It's also astounding that no German leader was excommunicated from the Catholic Church because of the Holocaust or WWII (altho propaganda minister Goebbels was excommunicated for marrying a divorced Protestant woman).

The best response about Communism comes from Christian historicity researcher David Fitzgerald: "Atheism is nothing more than a conclusion. There are plenty of people in this world who are atheists, but this doesn't mean we share values. Communism is a perfect example. Communism is for all practical purposes, a political religion: It is totalitarian, it venerates its sainted founders, it has sacred dogma that cannot be challenged; it persecutes its heretics, it does not brook disobedience, it feels no compunction against twisting science for its own means. Even its touted 'atheism' is simply a defensive reaction against its rival religions. It has nothing in common with the free thought of Paine or Jefferson, or the humanism of Dawkins or Einstein."

It's often argued that leaders and others who use Christianity or Islam to further evil ends don't really believe in God or Jesus or Allah or the Prophet Muhammad, and thus aren't "true Christians" or "true Muslims." This is an example of the "no true Scotsman" logical fallacy. And, as I noted for Hitler, it really doesn't matter what these leaders truly believe; what matters is what their followers think they believe.

The basic precept of Christianity, that Jesus sacrificed himself for a greater good, can be a powerful model for children and soldiers to emulate. And, there are biblical verses that support a war-like Jesus.

Islam has war and killing more firmly embedded in its "holy" book, with the Prophet Muhammad portrayed as a warring earthly leader. Islam adds to the image of self-sacrifice with promises of greater heavenly rewards to those who die in the name of their faith. The Quran is full of threats against unbelievers, justifying war against them — even beheading them. It also has says that apostates should be killed, and many Muslims interpret the Quran to sanction punishment (including killing) of other Muslims who are not "true Muslims." There are millions of Muslims who believe these and other poisonous ideas, and this is a threat to civilization. An honest reading of the news for just about any day exposes this malignant peril. Islam is not the religion of peace that Muslims claim.

When religion, Communism, Nazism, racial purity, or other dogmatic ideas are combined with government, just about anything can be (and has been) justified "for a higher cause." This is why democracy must be kept free of religion and other dogma.

Many people think that it is beneficial for most people in a society to believe in a creator — that the more faithful a society is, the more likely it is to be safe and peaceful. However, a 2009 study by Gregory S. Paul shows that a high level of religious belief correlates with more crimes and other social problems. From the study's abstract: "Large-scale surveys show dramatic declines in religiosity in favor of secularization in the developed democracies... Data correlations show that in almost all regards the highly secular democracies consistently enjoy low rates of societal dysfunction, while pro-religion and anti-evolution America performs poorly... Popular religion is a coping mechanism for the anxieties of a dysfunctional social and economic environment." To put it simply, the study shows that religious belief is bad for societies, and badly functioning societies tend to cause increased religious belief. Here's a review of the study.

Perhaps this is why so many religious conservatives have fought against universal health care in the U.S. They realize that this would cause people to stop looking to an imaginary sky daddy to take care of them, and start looking to their fellow humans.

Atheism works well for free societies. Free nations with high levels of atheism — such as Sweden, Denmark, the Netherlands, Australia, Switzerland and Japan — are among the healthiest, wealthiest, most educated, and most free societies on Earth. Sweden, with a population that is least likely to go to church, has the lowest crime rate in the industrialized world. Denmark, estimated to be between 43% and 80% atheists and agnostics, is listed as the happiest nation in the results of a 2008 poll by The World Values Surveys. It's also interesting that Denmark legalized gay marriages in 1989.

God, Medicine, and Science

Let's look at religion and medicine. Religious leaders have consistently come out against medical advances. Hundreds of years ago they were against autopsies and medical use of cadavers for research. In the 1800's Christians fought the use of anesthetics on the ground that suffering is

God's will and therefore must be endured. This was particularly true for a woman's pain during childbirth, because they could quote the Bible to support their position. Some religious groups prohibit life-saving blood transfusions (because of a biblical death penalty for those who eat blood). Children die every year because their parents withhold medical treatment, trusting in their god instead. Many religious leaders attempt to prevent access to birth control, disease prevention, and information about sexuality. They act as though they would prefer to see people sick or dying of disease or starvation, rather than allow the population to have "forbidden" products and information. Recently some have come out against very promising areas of medicine, such as fetal cell research, stem cell research, and therapeutic cloning. For a while in the U.S. they convinced the government that these areas of research should be prohibited or severely limited. This has real implications for reducing the possible medical treatments available for each of us and our descendants, and for tens of millions of people in the world who have spinal cord injuries and diseases such as Parkinson's. Not all religions want this research limited; but many do, and they fail the medical test.

Many religions teach that a fertilized human egg should be accorded all the protections of a fully developed human being. This position — that a cell that can barely be seen without a microscope is equivalent to a human — could only be religiously based. Many Christians believe that abortion is wrong, supposedly based on their Bible's commandment against killing. However, the Bible defines being alive as breathing; since fetuses don't breathe, they are not defined as alive. This "holy" book also notes that fetuses and young babies have at most a monetary value, but no moral value, and even has stories of pregnant women being ripped open, with Yahweh's apparent blessings.

It's important to note that about half of all fertilized human eggs don't result in a birth. Thus, nature (or an all-powerful god, if you will) is the greatest 'abortionist' of all. If "life begins at conception" then most women who are sexually active, fertile, and not using birth control could be defined as killers. Some religions make this even more problematic by calling "artificial" birth control a sin — making women have almost impossible choices between their innate sexuality and the possibility of an unwanted pregnancy. Forcing women — especially if they've been raped — to have children that they don't want means that the women are little more than incubators. We can't legally force somebody to donate blood to save somebody else; it thus makes no sense to legally force a woman to continue a pregnancy that she doesn't want.

The problem of a pregnancy resulting from rape also points out a philosophical weakness in the position of many who are otherwise against abortion. If they would allow abortion in the case of rape, then they are ignoring the basic precept of the anti-abortion position — that the fetus is more important than the mother.

There's also the religious problem of souls in identical twins (which result from a single fertilized egg splitting). Does each twin get half a soul, or are there now two souls? And, what about when the two eggs recombine (which occasionally happens)?

A simple rejoinder to the "life begins at conception" religious mantra is to say that life doesn't begin at conception; it began billions of years ago and we just hand it down.

This all has an effect of trying to control women. Sam Harris has an insightful article on this, "God's Hostages."

One of the real evils that I see in both Islam and Christianity is that they take pre-hormonal kids and teach them that sex and even thinking about sex are wrong (much like murder is wrong). Then the hormones hit, and the kids will think that they are sinful and evil. Unfortunately for them, their religion has the solution — prostration before their god and further dedication to the religion. It's an effective and sick process.

Islam and Christianity teach that humans have "eternal souls." This myth causes followers to do truly horrendous actions to protect their own or their victims' "souls" from eternal torture, and ensure eternal happiness. Righteous believers have tortured others to death, flown planes into buildings, and many other evil actions — all in the name of this fallacious fabrication. The myth also keeps people fearful about an imaginary eternity, and prevents them from realizing the joy that can be experienced by living life in the present. Modern psychology has shown that humans are particularly vulnerable to arguments based on fear. Many religions use this to great advantage.

Christianity teaches that humans are innately sinful — i.e. broken, flawed, imperfect, wounded, weak, inadequate, or evil. It needs people to think this, so that they will buy what it's selling. Without something to be saved from, people won't need a savior. By letting go of this oppressing, crippling concept, we can work on healthy growth as humans who are not dependent on an imaginary savior, god or promise of "eternal salvation."

Most religions base their beliefs on a "holy" book or interpretations of the holy book by their religious leaders. Because the holy book is fixed, it cannot change to account for advances in our understanding of the world, or changes in our morality (such as the morality of slavery). Religions thus have an intrinsic goal of resisting change or even returning to a supposedly better past. Science, however, has as its pre-eminent goal the improved knowledge of the world and universe. This conflict has been played out almost countless times. Galileo's problems with the Catholic Church are classic examples. More recently, all the resistance to the Theory of Evolution is

religiously based. We have also seen governments reduce funding for scientific research into areas that some religionists disagree with, such as global warming. How far could humankind have advanced by now if not for the hindrance of religion?

God and Everyday Life

Let's look at God and everyday life. If there really were a personal god, the existence of this god would be an obvious fact in the universe. This god would be reaching into events in the world, and bypassing the laws of physics to influence the outcomes. People who lost limbs might have them re-appear. Babies killed in fires might come back to life. Other true miracles would happen. I've seen none of this, and I know of no one else who has either. In fact, there is *no* reliable evidence of any divine intervention, ever! God fails the reality test of everyday life.

We've looked at religion and history, education, politics, medicine, and everyday life. "What's the harm in religion?" some people say. I think that I've shown some of the harm. Religion is divisive and poisonous to rational thought. Madalyn Murray O'Hair summarized it well when she said, "Religion has ever been anti-human, anti-woman, anti-life, anti-peace, anti-reason and anti-science. The god idea has been detrimental not only to humankind but to the earth. It is time now for reason, education and science to take over."

God is Just an Idea

What could an invisible, immaterial god be like? This immaterial god would have an immaterial mind, and the only minds that we have *any* examples of result from physical brains. The only invisible, immaterial things that I know of are ideas, like mathematic, scientific and social concepts. Altho ideas can be powerful in moving people to action, they are abstract human creations and have no separate reality. If humankind were to disappear tomorrow, so would ideas — including the idea of a god.

The English language even has a term for this: "reify" — which means "to regard something abstract as real or concrete." The "god" idea is about as abstract as possible, with no real evidence for existence. However, people have been regarding some god or gods as real for thousands of years.

Where did this god idea come from? Humans are pattern-seeking animals. We see patterns everywhere, such as similarities between different types of plants, animals and people. We also often imagine invisible agents as causing movement and noises around us. To a great degree, this capability has served us well by helping us understand and adapt to our environment. It also causes us to imagine patterns where they don't really exist — ghosts, monsters in a child's room, the man in the moon, clouds, Rorschach tests, and "intelligent" design in the universe. This is where the god idea comes from. Michael Shermer said it best. "The concept of God is generated by a brain designed by evolution to find design in nature (a very recursive idea)."

Because we are sentient, social beings, our brains are wired to interact with other such brains. This capability is easily subverted, and we often anthropomorphize animals and even objects — giving them "human" qualities. The god concept can be seen as simply the result of people anthropomorphizing the universe. Also, because each god is just a projection of people's minds, he usually agrees with them. For further insights, Dr. Andy Thomson has a great video and book, showing his insights on "Why We Believe in God(s)."

There are many ways to know that gods are man-made constructs:

- Humans have worshiped thousands of different gods.
- Gods exhibit emotions, especially jealosy, anger, and love.
- Gods are political, always favoring the individual's politics. Earthly political and religious structures can be seen to emulate the heavenly structures of gods, saints, and angels. A leader can also invoke a version of the devine right of kings.
- Gods are nosey, and concerned with human affairs - especially sexuality.
- Gods are vain - demanding love, attention, sacrifice, sychophantic praise and flattery.
- Gods are sexist and racist.
- Gods are humanoid and have gender - usually looking much like the humans who created them.
- Gods communicate largely thru earthly, self-appointed representatives and the "holy" books that they write.

Why would any all-powerful, all-knowing being exhibit any of these characteristics?

As social beings, we desire the interaction, friendship, connection, and love of other beings. What could be better for this than an (imaginary) friend in the sky who will always love us and care about us, and will even sometimes do our bidding?

The god idea also gives people the ability to be certain about many things, while ignoring scientific facts. In effect, they would rather be certain than right.

Many people claim that they can experience their god thru meditation or prayer. It's important to understand what goes on inside the brain during such activities. Brain scans have shown that there's a section dedicated to delineating self from non-self. During meditation or prayer this section can have reduced activity — which can be experienced as a connection or oneness with the universe, or with their god.

Proofs and Qualities of God(s)

Ultimately though, it's not necessary to prove that a god doesn't exist. It is up to the god-believers to prove that their god or gods exist, for they are making the assertion of the existence of something that is not immediately visible. For example, if I were to claim that there's an invisible ten-foot tall pink unicorn standing next to you, and demand that you feed her, you could justifiably expect some sort of hard proof. The same concept of proof lies with those who claim that an invisible, immaterial god exists. Thus, even if all proofs of the nonexistence of gods were to fail, it would still be necessary for theists to prove the actual existence of their god, if they expect us to take them seriously.

Some people say that we can't prove that a god doesn't exist; to do so we would have to have absolute knowledge. This is wrong. Depending on how we define a god, it's possible to prove that it is self-contradictory and incoherent, and thus can't exist — just like it's possible to prove that square circles can't exist. Let's first discuss the Christian god Yahweh, which, as I've noted, is typically defined as having free will and being omniscient (all-knowing), omnipotent (all-powerful), omnibenevolent (all-good), omnipresent (present everywhere), eternal, and unchanging. Yahweh is also the creator of the universe.

Many Christian philosophers describe Yahweh (a.k.a. God) as a transcendent being that is outside of space and time. This directly contradicts his being omnipresent (everywhere *in* space and time).

Christian philosophers also often add other attributes to Yahweh, such as unknowable, ineffable (a favorite of mine), incomprehensible, and of course supernatural — because they don't want to limit a supposedly infinite being. How can we conceive or even logically discuss these characteristics? Any in-depth analysis ends in confusion, contradictions, and irrational nonsense.

First, it's important to note that humans concocted all of these qualities of Yahweh, and they have no examples in the real world — much like the capabilities of Superman. To get a better understanding of what Christians really mean, we can substitute "magical" whenever we see "supernatural"; they are semantically indistinguishable.

Yahweh's typical qualities sound pretty good. Unfortunately these attributes are mutually exclusive and can't all exist in one being, no matter how supernatural it is. Yahweh can't have free will and be omniscient and omnipotent. If Yahweh knows the future, Yahweh would be unable to change it, and thus could not be omnipotent. As a simple example, let's say that Yahweh declares what tomorrow's winning lottery numbers will be, and writes them down. However, now Yahweh can't change those numbers. Yahweh can't both know the future and change it. In fact, an omniscient god can't actually *decide* to do anything!

The idea of Yahweh's omniscience also brings into serious question the concepts of human free will and morality. If Yahweh knows what we are going to do then we have no free will and are just characters in a play created by Yahweh. Without free will, morality for humans makes no sense. Without free will and morality, any sort of divine punishment and reward system loses any justification. Heaven and Hell would be places where Yahweh could watch the souls he created, predestined for eternal happiness or agony.

The Christian Bible, with its Old and New Testaments, gives many conflicting characteristics of its main character - Yahweh/God. Richard Dawkins wrote in *The God Delusion*, "The God of the Old Testament is arguably the most unpleasant character in all fiction: jealous and proud of it; a petty, unjust, unforgiving control-freak; a vindictive, bloodthirsty ethnic cleanser; a misogynistic, homophobic, racist, infanticidal, genocidal, filicidal, pestilential, megalomaniacal, sadomasochistic, capriciously malevolent bully." Some may think that Prof. Dawkins is a bit harsh, but every term he used has backing in the Bible. I've assembled some of these verses here, here, and here.

In the earlier discussion of the First Cause Argument, I showed another reason that Yahweh can't exist. A Creator God like Yahweh that is eternal, perfect, and unchanging is impossible.

Yahweh is thus self-contradictory, incoherent internally and externally, and impossible — and can't exist.

The Muslim god Allah also suffers from conflicting characteristics. The Quran describes Allah as the Compassionate, the Merciful, the Loving, and the Just. In order for Allah to be just, he has to punish those who transgress his laws. To be just means to punish people exactly as they deserve. To be merciful means to punish people less than they deserve. In order for Allah to be

compassionate, merciful, and loving, he can't punish without these terms losing their meaning. Thus Allah can't exist with these four qualities.

Some people say that their god really does love us, but occasionally punishes us to teach us something. Because this “punishment” often involves people dying (from diseases or in natural disasters) this supposed “godly” love has little correlation to human love and is obviously concocted.

The Problem of Evil, or Theodicy

Yahweh can’t be both omnibenevolent and omnipotent, because terrible events really do occur, and this all-loving god hasn’t prevented them. This is known as the problem of evil (also known as theodicy), and it is one of the oldest and biggest problems for those attempting to prove the existence of a loving, all-powerful god. How can anybody explain the existence of such a god, while also knowing the bad things that happen to all of us and the terrible things that happen to far too many?

Christian philosopher Richard Swinburne says of the problem of evil, “If the world was without any natural evil and suffering we wouldn't have the opportunity, or nearly as much opportunity, to show courage, patience and sympathy.” This may be true, but is all the suffering in the world necessary? Is not at least some of the suffering gratuitous? Is there sufficient good — or even any good — derived from an estimated nine million children under the age of five dying every year from starvation, disease or dysentery? How are they helped by others showing courage, patience and sympathy?

The ancient Greek philosopher Epicurus summed it up well when he wrote these ideas:

> Either God wants to abolish evil, and cannot; or he can and does not want to.
> If he wants to, but cannot, he is impotent.
> If he can, but does not want to, he is wicked.
> If, as they say, God can abolish evil, and God really wants to do it, why is there evil in the world?

And yet the idea of an all-knowing, all-powerful, and all-good god with free will won’t go away. So, here we are discussing this subject again. It’s good to remember that thousands of gods have been created by humankind. Monotheists don’t believe in all but one of them. Atheists don’t believe in just one more.

In fact, the existence of honest and kind atheists is another proof that the Christian god, who demands belief, doesn’t exist. If this all-good (or all-loving) god existed, it would want everybody to be saved — even atheists. If this all-knowing god existed, it would know that atheists just want real proof of its existence. If this god were all-powerful it would be able to give unambiguous proof of its existence. It hasn’t. Therefore this god doesn’t exist.

As I have shown, the concept of God is also logically contradictory; God not only does not exist but cannot exist. In short, God is impossible.

Atheism, Agnosticism and Humanism

The atheist position is that the universe is a product of natural, undirected processes — and we can work at understanding these processes in the naturalistic terms of science and mathematics. There is no need for a god in order to explain the universe, or reliable evidence to show that any god exists. Atheism is more than just a belief paradigm; it is a conclusion based on the lack of any empirical evidence for any gods. Reality rules.

Richard Dawkins expressed it well. “The universe that we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil, no good, nothing but pitiless indifference.” He also wrote why atheism is useful for improving our world. “Let's get up off our knees, stop cringing before bogeymen and virtual fathers, face reality, and help science to do something constructive about human suffering.”

Some people claim that it takes more faith to be an atheist than to be a believer. This is false. All it takes to be an educated atheist is understanding rational logic and what scientific evidence is, not unquestioning faith or beliefs. For instance, atheists (like most people) don’t simply believe or have faith that the sun will come up tomorrow; we conclude that it will — based on evidence and logic. We also know that no gods were causing lightning before it was understood. Atheists know that the same process of evidence and logic can also be applied to larger subjects such as evolution and the Big Bang. This may remove some of the ‘magic’ of the universe, but for many it can create deep feelings of amazement and wonder of the world around us.

Most people seem to assume that agnosticism is a position between theism and atheism, and that atheism and agnosticism are incompatible. This is false. Agnosticism deals with knowledge (or lack thereof). Theism and atheism deal with beliefs. Theism is based on the belief that a god or gods exist. Basic atheism is simply a lack of belief in gods. For many atheists, it is also the conclusion that no gods exist.

Why atheism and not agnosticism? Many people say that there still could be a god, that we can't totally disprove the existence of all types of gods. That is true, but most people's just-in-case-there-is-a-god agnosticism ends up splitting hairs and being intellectually lazy (or displays their unwillingness to accept uncomfortable conclusions). I think that this agnosticism is just atheism for cowards. Some have defined it as, "I don't believe in God, but in case I'm wrong I'm really, really sorry."

It's interesting that Christian philosophers, as I've noted, have given attributes to Yahweh such as unknowable, ineffable, and incomprehensible — which are just terms for agnosticism.

The typical personal god, such as Allah or Yahweh, would show up in its interactions with the real, physical world. As I've shown, there is *no* empirical evidence of this. Thus, in this case, absence of evidence *is* evidence of absence. I've also shown that Allah and Yahweh can't exist because their definitions are incoherent. This leaves only marginal gods that have little or no interaction with humans and the world. Do we think that the ancient Greek gods still exist? How about the Roman, Norse or Mayan gods? How about Santa Claus or the Easter Bunny? Of course not. There is no verifiable evidence for any supernatural guy in a red suit, magic rabbit, or gods. Just like it's hypothetically possible for an undetectable teapot to be orbiting the sun (as noted by Bertrand Russell), some gods are also hypothetically possible, but ridiculously improbable. So, let's be honest with ourselves and look at the world with open eyes, as it actually is.

Essentially, all the hypothetical arguments become rather pointless. Atheism is the simple conclusion that there are no gods, based on the reliable evidence. Until some god makes its presence indisputably, unquestionably known, I will go with the conclusion that no god exists. This is why I'm an atheist. Technically, I'm an agnostic atheist, and I'm agnostic about gods to the same degree that I'm agnostic about invisible fairies in my garden.

Christians and Jews don't believe in Allah or Brahma. Hindus don't believe in Yahweh or Allah. Muslims don't believe in Brahma or Yahweh. Atheists agree with all of them.

The truth is that we are, each of us, all alone in our minds. Many people have imaginary friends called gods to make them feel less alone, and often more loved. Our desire for love is a powerful trait, and it's one of the reasons for the popularity of Christianity with its sayings "God loves you" and "Jesus loves you." Some people learn to give up their imaginary friends. It's sometimes not easy not believing, and it is intellectually honest. Atheists can derive strength from that.

There's no reliable evidence for any gods, saviors, demons, heavens or hells. They are all just creations of people attempting to flee the idea of their own mortality, and promulgated by honest people who are similarly deluded or by tricksters who fleece the sheep.

People have been struggling with mortality for thousands of years. Here are four quotes that I like:

> "Why should I fear death? If I am, death is not. If death is, I am not. Why should I fear that which can only exist when I do not?"
> - Epicurus

> "For me, it is far better to grasp the universe as it really is than to persist in delusion, however satisfying and reassuring."
> - Carl Sagan

> "We are all going to die, and that makes us the lucky ones. Most people are never going to die because they are never going to be born. ... The only reason we die is that we were born. Would you rather have never been born at all?"
> - Richard Dawkins

> "I was dead for millions of years before I was born and it never inconvenienced me a bit."
> - Mark Twain

The Joy of Atheism

About 13.7 billion years ago the Big Bang created a universe of only hydrogen, helium, and small amounts of lithium. All other elements were created in the cores of stars and in supernovas when some stars exploded. About 4.5 billion years ago our solar system was formed out of the remnants of supernovas, and we are formed out of our solar system. We are stardust. As physicist (and occasional philosopher) Lawrence Krauss said, "Forget Jesus. The stars died so that you could be here today."

All living things die. All planets and stars will eventually die. Current evidence shows that even our universe will fade out over trillions of trillions of years. I find this amazingly liberating, and realize that life is to be lived joyfully and fully in the present, which is all we really have — while remembering the past and projecting into the future to give us guidance as to how to live now.

Some people think that our mortality means that our lives are meaningless. When we experience a good movie, play or book, we can find meaning in them despite the fact that they are finite. Why should our lives be different?

Many religious people ask how atheists can be happy without a god. For me and for many atheists I know, the realization of our atheism has been extremely freeing and has opened us to our innate happiness.

- Atheism helps us to see reality as it actually is, without the mental filters of superstition preventing us from directly experiencing it.
- Atheism opens us to experience our selves, without the debasing ideas that we are innately broken, evil or sinful.
- Atheism allows us to experience true interpersonal love, without any imaginary supernatural intervention.
- Atheism gives us the freedom to think for ourselves, to construct our own meanings. We each can choose what we think has value.
- Atheism shows us that we can gain meaning by seeking to make our world a better place, for ourselves and our posterity.
- Atheism teaches us to take responsibility for our behaviors in the here and now, not for a reward in an imaginary afterlife.
- Atheism lets us see that we have to make choices about our future. No big daddy god is going to protect us from bad decisions.
- Atheism teaches us to treasure this moment, this life, and this world — because we realize that it's all we have.

Here are three more quotes that show the advantages of atheist life and thought:

> "When I became convinced that the Universe is natural — that all the ghosts and gods are myths, there entered into my brain, into my soul, into every drop of my blood, the sense, the feeling, of the joy of freedom. The walls of my prison crumbled and fell, the dungeon was flooded with light and all the bolts, and bars, and manacles became dust."
> — Robert Ingersoll, 1896

> "We experience happiness and suffering ourselves; we encounter others in the world and recognize that they experience happiness and suffering as well; we soon discover that 'love' is largely a matter of wishing that others experience happiness rather than suffering; and most of us come to feel that love is more conducive to happiness, both our own and that of others, than hate. There is a circle here that links us to one another: we each want to be happy; the social feeling of love is one of our greatest sources of happiness; and love entails that we be concerned for the happiness of others. We discover that we can be selfish together."
> — Sam Harris, *The End of Faith*

> "There is no evidence for a god, no coherent definition of a god, no good argument for a god, good positive arguments against a god, no agreement among believers about the nature or moral principles of a god, and no need for a god. We can live happy, moral, productive lives without such belief, and we can do it better."
> — Dan Barker, of Freedom From Religion Foundation

Many theists complain that atheism provides no values, no code of ethics, no standard by which to measure any human conduct. This is true, but it's like saying that quantum mechanics provides no such values. Like quantum mechanics, atheism is simply a conclusion about how the universe is — based on the reliable evidence. This is why most atheists are also Secular Humanists, or just Humanists. The philosophy of Secular Humanism takes the atheist position and adds another layer. It declares that humans are most important, not any imaginary gods. We have the power, thru love, reason, science, courage, and vision, to solve our problems. We shape our destiny. We are each capable of personal development and satisfaction. Secular Humanism holds as its highest goal the happiness, fulfillment, and freedom of all humankind.

There are many local and nationwide nontheist groups in the U.S. and thru-out the world. I've collected a list of some of them on our communities page.

This has been a long and involved article, so I would like to conclude with letting you know the bad news ... and the good news. The bad news is that there is no god to watch over and care for us. The good news is that there is no Hell, and we can all love and care for each other — if we so choose.

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* CE denotes Common Era. BCE denotes Before Common Era. They are equivalent to A.D. and

B.C.
** Here's a note about the simplified spelling in my article.

Comments? Email Mark Thomas

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